Fonds National de la Recherche Luxembourg

Researcher CV

Name: Andrea BINSFELD

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Personal Statement (maximum 150 words):

In my professional career, it is and has always been my goal to create links – links between different disciplines, between researchers, and between the academic world and the broader public, both by publications and expositions. My aim is to get a fresh look on various subjects and ancient sources by combining innovative approaches and to share this knowledge with students, colleagues, and the public. During my undergraduate and postgraduate studies, I concentrated on the overlapping areas of history, philology, and archaeology. In the past two decades, I have increasingly been including digital technologies, both in my research methodologies and my publication activities. At the University of Luxembourg, I have the opportunity to work in an interdisciplinary environment that comprises not only social and literary sciences, but also the Digital Humanities. I am keen to keep this broad interdisciplinary approach and to further develop my understanding of digital methods and practices.

Personal details – Individual narrative profile (maximum 250 words):

When I enrolled at Trier University for history, Classical archaeology, and classical philology, my first and foremost aim was to study Classics in the broadest way possible. From the beginning, I was fascinated by the material culture, so that I also completed several internships in museums, such as the Rheinische Landesmuseum and the Museum am Dom, Trier. This resulted in a Master and a doctoral dissertation, in which I was able to combine history, archaeology, and epigraphy, working in close collaboration with the afore mentioned museums. During my studies, I developed a further research focus on social history, especially the history of ancient slavery.

As a postdoctoral scholar, I had the opportunity to work at the Academy of Sciences in Mainz in a project on ancient slavery. During this time, I was not only responsible for the digital edition of a lexicon of ancient slavery, but I also experimented further with different digital formats, as for example the development of a database of the material culture of slavery.

When resumed my position at the University of Luxembourg, I attracted funding from the UL to continue working on databases on slavery. As part of my larger research strategy, I also initiated an INTER-project on ancient funerary monuments. This project not only collected and analysed funerary monument, but also visualized and reconstructed them digitally. Finally, I actively participate in the DTU “Digital History and Hermeneutics”, also by supervising a successfully completed doctoral dissertation on trading networks in antiquity.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

One of the key outcomes during my time as a postdoctoral researcher at the Academy of Sciences was a Lexicon on ancient slavery. It is a cumulative publication, organised in a series of individual CD-ROMs. I prepared the digital edition by encoding the articles using XML. The result are four CS-COMs of the “Handwörterbuch der antiken Sklaverei”. The cooperation with the Trier Centre for Digital Humanities proved to be very productive and inspiring. I used, for example, the FuD software (Forschungsnetzwerk und Datenbanksystem), which can combine material and written sources. This was necessary in order to facilitate the often-problematical identification of slaves. The idea behind the database is described in my article “Archäologie und Sklaverei: Möglichkeiten und Perspektiven einer Bilddatenbank zur antiken Sklaverei. In: H. Heinen (ed.): Antike Sklaverei: Rückblick und Ausblick. Neue Beiträge zur Forschungsgeschichte und zur Erschließung der archäologischen Zeugnisse, Stuttgart 2010, 161–177”. A further result was an international conference held in Luxembourg, resulting in a publication on the iconography of slaves: Ubi servi erant? Die Ikonographie von Sklaven und Freigelassenen in der römischen Kunst, ed. by A. Binsfeld, M. Ghetta (Stuttgart 2019).

Contributing to the development of individuals

The INTER-project “Funerary Monuments from Western civitas Treverorum in an Interregional Context” was financed by the Austrian FWF and Luxembourgish FNR. The aim was to provide a detailed documentation of the archaeological objects by drawings and 3D-Scans (Agisoft Photoscan or Artec EVA) as well as the contextualisation of the findings by GIS mapping. We worked in close cooperation with the Austrian Academy of Sciences, the Luxembourg Centre for Contemporary and Digital History, the museums in Arlon, Luxembourg, and Trier as well colleagues from the University of Frankfurt and their complementary DFG project on the funerary monuments of Trier. Major outcomes are the PhD thesis of Christine Ruppert on the architecture of the funerary monuments of the first century AD from Arlon (co-tutelle University of Luxemburg/TU Berlin) and the proceedings of an international conference „Stadt – Land – Fluss. Grabdenkmäler der Treverer in lokaler und überregionaler Perspektive. Akten der Internationalen Konferenz vom 25. – 27. Oktober 2018 in Neumagen und Trier, ed. by A. Binsfeld, A. Klöckner, G. Kremer, M. Reuter und M. Scholz, Trier 2020“. Included in this volume is my article, co- authord by Christine Ruppert: “Die frühkaiserzeitliche Grabarchitektur aus Orolaunum vicus/Arlon: Rekonstruktion und Kontextuali- sierung der Grabbauten einer lokalen Elite”.

Contributing to the wider research community

My third group of important achievements comprises my teaching experience, the supervision of doctoral dissertations, and my public outreach activities, for which I mention only some examples. I supervised the above-mentioned thesis of Christine Ruppert and, as a member of the DTU „Digital History and Hermeneutics“, a thesis on trading networks: on the basis of epigraphic material, Jan Lotz worked on the analysis and visualization of trade links using network analysis and geo-information system. A special interest of the DTU and the PhD project was the critical hermeneutical analysis of digital tools. In my teaching activities, I put emphasis on the connection with cultural institutions in Luxembourg and Germany. For the exhibition “Konstantin der Große” in Trier 2007, I created with my students at Trier University the Amicus Trevirensis, a newspaper in the style of a regional daily paper. Students of the University of Luxembourg, with the support of archaeologists of the CNRA Luxembourg, designed a guided tour through Dalheim in Roman times by using the Izi- travel app. For the exhibition “Der Untergang des römischen Reiches” (2022), a cooperation between the Universities of Luxembourg and Trier and three museums of Trier is developed, for which students will prepare blogposts.

Fonds National de la Recherche Luxembourg

Researcher CV

Name: Andreas FICKERS

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Personal Statement (maximum 150 words):

My career as a scholar has taken several turns throughout the years. I started as a historian of technology with a keen interest in technologies of communication, then moved into the field of media history (bridging my interest in the materiality of communication technologies with the socio-cultural history of media), and finally turned into a digital historian (reflecting on the methodological and epistemological challenges of doing history in the digital age). During all the phases of this intellectual journey, two main ambitions have characterized my academic endeavours: first, to think and do history in both an interdisciplinary and transnational fashion; second, to develop and promote new research agendas by setting up new research networks and realizing innovative research projects. BUREU both builds on my expertise in studying the "hidden integration" and takes a fresh look at EU office spaces ("hardware") as materializations of ideas from the field of management ("software").

Personal details – Individual narrative profile (maximum 250 words):

Since my study of history, philosophy, and sociology at the RWTH Aachen University, I have been fascinated by exploring the complexity of past realities by combining the rigorous methods of historical science with theoretical and conceptual reflections. Combining epistemological reflections with a curiosity-driven exploration of new research methods and tools has been at the heart of my development as a scholar and teacher.

My professional trajectory has allowed me to study, work and learn in different disciplinary (History, Media Studies, Science & Technology Studies) and national contexts (Belgium, Germany, France, Netherlands, Luxembourg). This multiple disciplinary identity and my language skills have enabled me to act as a bridge-builder and networker, initiating and managing a number of important European research networks, such as the *European Television History Network* or the *Tensions of Europe* network. These activities resulted in a number of important collaborative research projects and publications, combining intellectual agenda-setting with asolid experience in project management and extensive scholarly output at international level.

Since my nomination as Director of the Luxembourg Centre for Contemporary and Digital History (C^2DH) in 2017, my ambition is to turn the C^2DH into a "trading zone" for hands-on experimentation with new digital research tools and infrastructures and critical digital hermeneutics. With a strong commitment for public history outputs and creative forms of transmedia storytelling, I've recently been experimenting with new forms and formats of scholarly storytelling online aiming at training the next generation of historians in both critical thinking and digital storytelling.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

Since my Practical Course at the Deutsches Museum I've been interested in studying material heritage as historicalsource. Both the topic of my MA thesis (on the transistor radio) and my PhD thesis (on thestandardization of colour television in Europe) had their origin in material artefacts beingdisplayed at Deutsches Museum Bonn. Combining the study of the complex functionality oftechnical objects and infrastructures with an investigation of their symbolic meanings andsocial and/or political uses has been at the heart of several research projects. As BUR*EU* isfocusing on interior design of office spaces as "mediating interface" between the "hardware"of architecture and the "software" of managerial ideas, my work on the history of design ofradio receivers is especially useful as conceptual/methodological inspiration. See: "Design als 'mediatinginterface'. Zur Zeugen- und Zeichenhaftigkeit des Ra dioapparates", in *Beiträge zur Wissenschaftsgeschichte* 30 (2207) 3: 199-213; „Visiblyaudible: The Radio Set as Mediating Interface, in: T. Pinch / K. Bijsterveld (eds.): *The OxfordHandbook of Sound Studies* (Oxford University Press 2012: 411-439).

Contributing to the development of individuals

The supervision and promotion of youngtalents has been a major ambition ever since I started my teaching career as Assistant at RWTH Aachen University. Experimenting with project-based teaching formats aiming at making students participate in the iterative process of doing historical research and producinga great variety of narrative forms (exhibitions, podcasts, video-essays, web-documentaries, films, virtual exhibitions). Doctoral education is at the core of my activity as professor and headof the interdisciplinary research centre C^2DH: producing "creative uncertainty" serves as my pedagogical credo, combined with a strategic coaching approach. I'm a member of the Management Board of the Doctoral School in Humanities and Social Sciences (DSHSS) of the University of Luxembourg and Head of the FNR- funded Doctoral Training Unit (DTU) "Digital History & Hermeneutics" in which the acquisition of digital skills and competences is key. Together with Prof. Dietmar Hüser (Universität des Saarlandes) and Prof.Hélène Miard-Delacroix (Université Paris-Sorbonne) I coordinate the tri- national DoctoralSchool "International History Interdisciplinary", funded by the French-German University. In allactivities, active involvement of the doctoral students in teaching, organization of workshops and conferences, and multi-lingual communication skills are stipulated and supported.

Contributing to the wider research community

In the framework of Tensions of Europe-network, I have been involved in a number of research projects focusing on the role of technical infrastructures as important agents of "technocratic internationalism" and "hidden integration" of Europe. In the co-edited volume *Europe Materializing: Transnational Infrastructures and the Project of Europe* (Palgrave-MacMillan 2010), Alexander Badenoch and myself have outlined a conceptual framework for the study of transnational infrastructuresby stressing their multi-level nature as discursive, material, institutional constructions. In the co-authored monograph *Communicating Europe: Technologies, Information, Events* (Palgrave-MacMillan 2019) which is one of the 6 volumes of the "Making Europe" bookseries, Pascal Griset and myself have further explored the analytical potential of the concept of European techno-diplomacy to study how techno-scientific experts, politics, and institutional actors have been involved in the co-construction of technical hard- and software. This approach has also informed the latest book I've co-edited with Gabriele Balbi *The International Telecommunication Union (ITU): Transnational techno-diplomacy from the telegraph to the Internet* (Berlin: De Gruyter 2020), analysing the ITU as arena, actor and antenna for a global regulatory regime in the field of telecommunications.

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Andreas LOUKAS

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Personal Statement (maximum 150 words):

Neural networks (NNs) present an exciting prospect for the future. Moreover, it is often thought that NNs can easily accomplish any task. In actuality, much of the recent progress is attained by dramatically scaling the data size. Hence, though modern NNs excel at big-data problems, it remains unclear what is the best way to best harness these tools in a wider context, such as in the analysis and organization of the history of human interaction, knowledge, and mobility. My research aims to extend the success of NNs to problems that, though not massive in scale, possess *structure* that can be exploited to facilitate artificial reasoning. Specifically, I search for principled ways of building NNs that cater to the properties of the application at hand. This is an ambitious goal that touches upon some of the most fundamental issues of ML and artificial intelligence (e.g., priors, inductive bias, symmetries).

Personal details – Individual narrative profile (maximum 250 words):

I completed my undergraduate studies at the computer science department of the University of Patras, in Greece. I then moved to TU Delft, the Netherlands to pursue post-graduate studies on the topic of graph and network algorithms. Following the successful defense of my Ph.D. in 2015, I worked as a post-doctoral researcher for one year at TU Berlin in Germany (under the guidance of Prof. Stephan Schmid and Anja Feldman) and for 2 years at EPFL, in Switzerland (under the advisory of Prof. Pierre Vandergheynst).

From 2018 to 2021, I was an independent researcher at EPFL, leading a small research group funded by a competitive grant for young investigators (SNF Ambizionne grant). Starting in October 2021, I will move tothe University of Luxembourg in order to assume the position of Assistant Professor and to build a new group focusing on the foundations of machine learning.

I have authored 36 peer-reviewed articles, out of which 15 in rank A* conferences and 7 in high-ranked journals. My work has been cited upwards of 1200 citations and I have an h-index of 18. I have gained more than a million euros in competitive research funding. I have published in top venues in machine learning (11 papers), signal processing (6 papers), computer networks (5 papers), and discrete algorithms (2 papers). I am currently the main supervisor of 1 Ph.D. student andthe co-supevisor of 4 Ph.D. students.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

Part of my research is devoted to determining what is the right way to develop graph neural networks (GNNs), i.e., NNs that are appropriate for data that possess graph structure (such as those that we will encounter in the D4H project). My work so far has focused on understanding the basic properties of GNNs and using these insights to develop improved architectures. My recent findings uncovered basic limitations of conventional GNNs, proving that they cannot learn to solve many graph problems unless their size grows polynomially with the number of nodes and indicating the importance of unique identifiers. These results were the first of their kind and showed that an Achilles' heel of standard (permutation-equivariant) GNNs is that they do not always have unique node features. This realization has been a driving force behind a surge of recent efforts to improve GNNs and inspired us to propose structural message-passing (SMP), the first GNN architecture that is both universal and permutation equivariant. SMP can solve graph tasks that are impossible for GNN, while also exhibiting good generalization due to being permutation equivariant.

Contributing to the development of individuals

My second research direction entails developing NNs whose predictions abide to constraints. Constraints present a useful way to structure reasoning: for instance, in the context of a social information spread, two people that share a piece of information must have been in contact in a place in time, whereas in chemistry stable molecules can only contain bonds between specific types of atoms. Unfortunately, it remains unresolved how such prior knowledge can be efficiently incorporated into deep learning pipelines. After all, dealing with constraints seems to entail handling highly non- differentiable functions over exponentially sized spaces, something that NNs are not particularly apt at. Together with my Ph.D. student, we proposed a framework for training NNs to solve combinatorial optimization problems. Our approach provides the first fully differentiable methodology for training NNs able to provide guarantees that constraints will be met without supervision. That is, we do not rely on ad-hoc heuristics or relaxations, but present a principled solution that works for a large class of constraints.

Contributing to the wider research community

In the problem of path inference, given a path prefix, i.e., a partially observed sequence of nodes in a graph, one aims to predict which nodes are in the missing sux. The focus is specifically on natural (and not shortest) paths occurring as a by-product of the interaction of a human agent with a network -- a driver on the transportation network or an information seeker in Wikipedia. My team proposed a neural solution to this problem that improved state-of-the-art. In one of the case studies, we considered the task of predicting human behavior in the game of Wikispeedia. In this game, human players are called to and a path from a source to a target article by following a sequence of hyperlinks. Thus, given a prefix of four pages, we tasked our method with guessing to which page the player was navigating towards. Despite the difficulty of this task, in many situations, the NN was able to correctly guess the implicit biases used by players in order to navigate through a web of concepts - perhaps suggesting that human choices are not as unpredictable as one would expect.

Fonds National de la Recherche Luxembourg

Researcher CV

Name: Antoine PACCOUD

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Personal Statement (maximum 150 words):

As a researcher, mentor and policy advisor, my aim is to advance both academic and societal thinking through the combination of rigorous empirical and theoretical perspectives from a variety of social scientific and philosophical traditions. The focus of my work has since the beginning been on understanding the long-run structures and mechanisms that entrench social inequalities, and on locating the sites – be they physical, political or ideational – at which change could occur. This has meant developing research that provides strategic orientations for policy action, including through collaborations with policy makers, and translating complex ideas for the public and the press. Over the years, I have increasingly focused my attention on long-run inequalities related to property, especially land and housing, and on the ways in which the strategies of actors at the top of the property wealth distribution affect the housing conditions of the rest of society across time periods.

Personal details – Individual narrative profile (maximum 250 words):

I am a geographer interested in the long-run social inequalities created through the ownership of land and housing. My PhD at the LSE focused on one of the most important episodes of urban development in the last two centuries: Haussmann's transformation of Paris in the mid-19th century. In that work, I mobilized contemporary philosopher Alain Badiou's thought to study the political conflict between Haussmann and powerful property owners over the capture of the speculative gains emerging from this large-scale process of urban change.

My researchmoved into social geography during a post-doctoral appointment at the LSE. In this period, I drew on the detailed spatial analysis of neighbourhood-level change to study a new form of gentrification I was witnessing in my daily life in London: the use of rental investments to displace socially disadvantaged populations from centrally located neighbourhoods. This phenomenon, which I call "buy-to-let gentrification", made me realize the crucial importance of land and housing in contemporary inequalities, as well as the inscription of these inequalitiesin longer-term processes of social change.

Since my arrival at LISER in 2015, and as PI of theFNR-funded TER_INEQ project, I have been developing a research programme on the mechanisms through which the ownership and development of land and housing produce social inequalities in Luxembourg between 1949 and today. Through this work, I have realisedthe importance of returning to the past to ground understandings of current processes – and especially as concerns the historical roots of the country's extremely concentrated landownership structure.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

I am the first researcher in Luxembourg to systematically analyse data on property ownership drawn from the Land Registry. In the FNR-funded project TER_INEQ, I am using this data to produce a database capturing the complete and geo-referenced history of a territory's ownership structure over the 1949 to 2019 period. The dataset used in the project is compiled from more than 30,000 transactions: 'big data' structured in a relational database developed by LISER's IT department, and which relied on the research assistance of more than 20 students since 2017. This database, the first of its kind internationally, provides opportunities to identify the mechanisms through which property wealth inequality develops. The case study is Dudelange, a formerly industrial, medium sized city in which house prices have increased rapidly since the 1990s. The empirical results obtained so far have complicated accepted ideas, and have highlighted the importance of long-run trends, such as the historical structure of landownership. The dataset will be open to the public at the end of the project. I see the PhD topic proposed in this submission as an investigation of the originsof the property wealth inequalities uncovered in the contemporary period.

Contributing to the development of individuals

As coordinator of theHousing Observatory, I manage a 620,000 euro a year grant from the Ministry of Housing and organise the work of over 20 researchers, data analysts and members of the support staff at LISER. I pay close attention to fostering new ideas, and to developing talents within the team. My close attention to the well-being of the project team comes from my heavy involvement in teaching and mentoring while at the LSE and elsewhere. I received the awardfor inspirational teaching from the LSE's student union in 2014. In recent years, I have mentored a large number of students in the context of the TER_INEQ data collectionprocess and have encouraged the brightest to push on with their studies. Those with an academic interest have drawn on the TER_INEQ data to develop original research projects for their bachelor and masters level dissertations, all of which were highly commended by their respective evaluation panels. I am currently supervising a PhD student and two master students, and I am a member of another's PhD student's committee. I see the development of talented researchers as a core mechanism to effect broader social change.

Contributing to broader society

My work is a response to the historically cautious natureof housing-related discussions in Luxembourg, which rarely focused on the winners and losers of the country's political and regulatory context. Tackling the political economy ofland and housing, including through my role as coordinator of the Housing Observatory, has shifted the national debate on housing. My work on the extremely concentrated ownership of residential land in Luxembourg (published as a Housing Observatory report in 2019) provided the first objective overview of an issue that many housing insiders knew was a problem, but which had never attracted significant public attention. A recent research article developed in collaboration with researchers at the University of Luxembourg and LISER pushed the discussion further by pointing to the way in which the regulatory context facilitates private land-based wealth accumulation strategies. This research article garnered significant interest and was covered by all major newspapers, as well as by radio and television. Most political parties now accept that speculation in residential land contributes to the country's housing crisis and have issued proposals for land tax reform. The PhD topic proposed here aims to more clearly identify the mechanisms that have over the long-run entrenched unequal landownership structures.

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Cédric PRUSKI

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Personal Statement (maximum 150 words):

My professional goals have always been oriented towards scientific excellence, ethical behaviour and maximization of impact. My natural curiosity and my attraction for science led me to focus on concrete research problems encountered by actors of the public and private sectors, provide a scientific and technical solution to the identified problems and bring the resulting solutions to the market. This way of looking at my professional activities has allowed me and will allow me to flourish within the Luxembourg Institute of Science and Technology.

Personal details – Individual narrative profile (maximum 250 words):

I am currently senior researcher at the Luxembourg Institute of Science and Technology (LIST). I joined the healthcare department of the Henri Tudor research centre (former LIST) after obtaining my PhD from both university of Paris-Sud and University of Luxembourg as post-doctoral fellow to work on applied research questions dealing with semantic interoperability in the health and (Bio)medical domains.

The relationship that I was able to establish with key players of these fields allowed me to identify concrete research problems for which I obtained funding (DynaMO and ELISA national and international projects) to build a team of PhD students (Julio Dos Reis, Emna Mezghani, Veruska Zamborlini and Silvio Cardoso) and researchers (Asma Ben Abacha and Duy Dinh) to work on topics dealing with knowledge representation and evolution. The management of this team and the excellent scientific and technological results obtained in these projects allowed me, on the one hand, to defend an *Habilitation à Diriger des Recherches* (highest diploma in France) only 6 years after the defence of my PhD and, on the other hand, to push the research results to the market through the MAISA and MAISA2 projects that I led.

Last, the recent creation of the Dynaccurate SARL company for the commercialisation and improvement of the evoked technologies shows that I was able to conduct fundamental research (TRL 2-3), to further bring the resulting technology to a higher level of maturity (TRL 4-6) and to participate in the creation of a spin-off company for its commercialization (TRL 7-8).

Key outputs, contributions, and achievements (maximum 200 words per item):

Since the beginning of my PhD and later on during my professional activities my main research interest has been set to knowledge representation with a particular attention paid to issues related to knowledge evolution. In this general context, I have made the following three major contributions.

Contributing to the generation of knowledge

As the representation of knowledge has been the main thread, I have been able to acquire a deep understanding of the problems linked to the evolution of knowledge. These are theoretical ones that I have investigated during my PhD and early career but also practical ones that I have discovered with a constantand close relationship with industrial stakeholders that are facing such problems in their dailyactivities. With this background I have been able to build a sustainable pipeline of projects acquired through competitive and collaborative funding schemes that has led to successful scientific and technological achievements. Among these results are several scientific publications in major venues and peer-reviewed journal of the fields Semantic Web, (bio)medical informatics, knowledge representation and reasoning as well as Artificial Intelligence. Moreover, these relevant scientific results have conducted to the development of the Dynaccurate platform for knowledge graphs management that has recently been transferred to the Dynaccurate SARL company for commercialization. These results reflect a desire to maximize the impact of the ideas developed in the research projects I have led as principal investigator while focusing on scientific excellence.

Contributing to the development of individuals

The acquired research grants have allowed me to build and manage a research team composed of two post-doctoral fellows and four PhD candidates, who have all successfully defended their PhD, and which I had the honour to co-supervise with Prof. Chantal Reynaud-Delaître from University Paris- Saclay, Prof. Frank van Harmelen from Vrije Universiteit Amsterdamand Dr. Khalil Drira from LAAS-CNRS, three experienced renowned researchers in computerscience. The experience I gained during this supervision activity has contributed to the careerdevelopment of the PhD students since Dr. Julio Dos Reis is now recognized Professor at theuniversity of Campinas (Brazil), Dr. Emna Mezghani is currently researcher at Orange labs, Dr. Veruska Zamborlini is post-doctoral fellow at the university of Amsterdam and Dr. Silvio Cardoso is CTO at Dynaccurate SARL but also post-doctoral researcherssince Dr. Asma Ben Abacha is researcher at the National Library of Medicineand Dr. Duy Dinh is IT consultant at Infeurope S.A.

Contributing to the wider research community

The quality of the results I have obtained in the research activity I have conducted, has drastically increased my visibility within the scientific community in particular that of medical informatics and artificial intelligence. This visibility is reflected in particular by my participation in the program committees of the main conferences of these fields, including ISWC, ESWC, AIME, CIKM, AMIA symposium andthe WebConf but also as reviewer for major journal including Nature. Moreover, the reputationthat I have established has allowed me to be invited as a keynote speaker to various scientificevents and to be able to develop several international collaborations with prestigious research groups such as the database group of the University of Leipzig led by Prof. E. Rahm which gave rise to research projects that I was able to manage as principal investigator.

Fonds National de la Recherche Luxembourg

Researcher CV

Name: Christina GATHMANN

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Personal Statement (maximum 150 words):

I am an economist at heart who likes to tackle and solve important and policy-relevant questions by combining thorough theoretical insights with the best available empirical methods and data.Perseverance and creativity are two key values in my work that I also foster in all my students and mentees. As mentor, I aim to support young researchers and students to becomeindependent, responsible and creative scholars who are able to make well-informed decisions about their careers and lives. Throughout my career, collaborations with others, especially young scholars and researchers from other disciplines has tremendously enriched my work andideas. The change of perspective that comes from inter- and trans-disciplinary exchange, be itpsychologists, sociologists, political scientists, historians, health researchers or physicians, is one of the many fascinating aspects of my profession.

Personal details – Individual narrative profile (maximum 250 words):

I obtained my Ph.D. in economics from the University of Chicago because after my double diploma in economics and social sciences I felt I had much to learn in economics. I was fortunate enough to be guided by two of the most inspiring and creative economists, the noble prize winners James J. Heckman and Gary S. Becker. The challenge of their fast minds and expectation was only slightly mellowed by my more junior advisors Steve Levitt and Michael Greenstone. I have benefited enormously from the stimulating discussions and intense environment in Chicago and later during my postdoctoral years at Stanford and the Hoover Institute. My time in the U.S. together with research stays at University College London, Yale, NYU, Columbia, Aalto University or NHH in Bergen have enabled me to build a broad network in Europe and North America, but also Asia and Australia. After returning to Germany, I became an assistant professor at the University of Mannheim and, after two years, a full professor at the University of Heidelberg.

Since the fall of 2020, I am the head of the Labor Market Department at the Luxembourg Institute for Socio-Economic Research (LISER). My research has focused on tackling important, general questions in economics. I have studied questions in labor economics, migration, health, public finance and political economy combining economic theory with sound empirical insights. In my work, I want to find the right answer to a question and aim to publish my research papers in the best international journals.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

During my ten years at the University of Heidelberg, I have served in many leadership roles, in particular during the application for the Excellence Initiative, a large and prestigious research program by the Federal Government of Germany to support the best universities. The University of Heidelberg has successfully secured the status of an excellence university as one among ten in all of Germany. I was member of the team preparing and discussing theapplication for the application in 2017 and the co-organizer of a large cluster initiative on "Self-Regulation and Regulation in Mental Health" bringing together 25 PIs from four difference faculties (Economics and Social Sciences, Psychology and Cultural Studies, Law, Medicine) at the University of Heidelberg. In addition, Irepresented the Faculty in the cross-faculty research initiatives Field of Focus 4 "Self- Regulation and Regulation" and the Flagship Initiative "Transforming Cultural Heritage"; both initiatives financed by the funds secured through the status as an excellence university. I further served as department chair of the Alfred-Weber-Institut (Department of Economics) and Vice-Dean of the Faculty for Economics and Social Sciences for two years. All of the functions mention required skillful leadership of discussions and conveying effectively between interests and ideas from a diverse, multi-disciplinary group of professors and university administrators.

Contributing to the development of individuals

Starting from my time as a post-doctoral researcher at Stanford University, I have been heavily engaged in mentoring junior scholars, esp. women starting or thinking about a career in economics. For many bachelor students at Stanford University, I served as a role model that women do economics and several of them felt inspired to declare their major in economics. As a full professor, I have organized and held one-day workshops for young female scholars at the annual meeting of the German Economic Association (Verein für Socialpolitik). The workshop offers guidance and discussions on publishing, career planning,networking, committee work and teaching strategies for advanced doctoral students toassistant professors. The workshop drew about 60 participants from all over German-speakinguniversities each year. I have also been asked to be a senior mentor for female scholars by the Bosch Foundation, the Leibniz Society, the University of Heidelberg andthe Institute for Employment Research. Throughout my career, I have advised about 25 doctoral students andmore than 100 bachelor and master students at the Universities of Mannheim and Heidelberg, many of which have gone on to successful careers in research, the public administration andthe private sector.

Contributing to the wider research community

Over the past decade, I have been heavilyengaged in councils and committees for theresearch community, political decision-making andsociety at large. Currently, I am the chairperson of the scientific council giving strategic advice to the Institute of Employment Research (IAB) where I have served as member since 2013. Thecouncil regularly meets with the president of the Federal Employment Agency and representatives of the unions and employers' federation to discuss labor market issues like long-term unemployment or the integration of refugees, for instance. I have also served as strategic advisor to the Federal Ministry of the Economy and Energy as member of its Scientific Council, the longest serving advisory body to a federal ministry in Germany. The scientific council discusses current economic policy issues and long-term strategic issues ranging from free trade, strategies for the digital transformation or the EU banking union, for example, to the Minister of the Economy. An equally inspiring, though very different engagement is for BASF, the chemical company, which I advise together with others on their cultural and social initiativesand sponsorship program TOR4.

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Christoph SCHOMMER

ORCID:

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Personal Statement (maximum 150 words):

My understanding of a functioning science lies in the symbiosis of research, teaching and outreach. The communication/appropriation of knowledge, its application and further development is a task that must not only benefit the university, but also the society. I see myself as someone who promotes, advises and supports young academics, produces and reviews scientific papers, facilitates a transfer of knowledge, but also as someone who demands independent thinking and a questioning of scientific findings. My research work is interdisciplinary and application-oriented, especially because Artificial Intelligence has experienced a renaissance in recent years and has become very important in many areas of scientific and social life. Besides the questions of technology, autonomy and consequences, there are also questions of ethics, explainability and transparency. And this is especially important in areas of research where sensitive decisions are to be made, as in the present area of financial crime prevention.

Personal details – Individual narrative profile (maximum 250 words):

I studied Artificial Intelligence at the German Research Centre for AI in Saarbrücken before working 8 years at IBM R&D as IT Architect in worldwide services projects concerning Business Intelligence. In parallel, I performed and received my PhD at Goethe University Frankfurt/Main (summa cum laude) before joining the University of Luxembourg as an Associate Professor in 2003.

Today, I lead a research group with 3 postdocs, 5 PhD candidates and 3 Master students, all performing interdisciplinary research using AI, Data Science, and Machine Learning. I am a scientific reviewer for the Dutch Research Council, Elsevier, Leibniz, Springer, IEEE and for more than 100 conferences (IJCAI, AAMAS, ACM, CogSci, ECML, and others).

I regularly organise lecture series and am author of about 100 scientific papers. I have (co)supervised 27 PhD students in Luxembourg, Leuven, Bologna, Torino, and London and have given about 150 courses at universities in Luxembourg (Computer Science, Mathematics), Berlin, Beijing, Singapore, and others.

I am constantly present in newspapers, radio, TV and at schools and research in numerous projects with industry (RTL, P&T, Thomson Reuters, and others) and in the scope of Esch22. I am the ViceHead of the UL Robolab, member of the Management Board of the DTU Digital Humanities & History, and a partner of the financialcomputing.net, which is a financial computing innovation platform between Luxembourg, London, Lisbon, and Rio. I have designed and implemented the Master in Computer Science and am currently leading the Bachelor in Computer Science.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

My projects go back at the German AI Research Centre, where I developed new ideas in knowledge-based visualization and a new concept for disambiguation of ambiguous sentences. During my PhD, which I did in Computer Science at the University Hospital in Frankfurt/Main, I consulted companies in the field of Machine Learning and Data Mining (Natural substance screening, and others). As IT Architect at IBM, I found new insights in customer data projects by applying Data Mining in fields like market basket analysis, churn prevention, or fraud detection. At that time, I was member of the IBM Recognition Program and IBM Patent Program and spent several months at the Research Lab in Almaden, USA. I continued in applied research by consulting several companies with Machine Learning, Deep Learning, and NLP expertise. 3 papers submitted won the best paper award, more than 50% of my PhD students' PhD thesis received an 'outstanding'. I very much collaborate with colleagues and research groups across the university, for example with Linguistics, Philosophy, Finance, and Medicine.

Contributing to the development of individuals

I have been supporting students and young scientists for 25 years. This began at the universities in Frankfurt/Main and Potsdam, as well as during my time at IBM R&D. Since then, I have supervised or co-supervised 27 PhDprojects (+ 12 ongoing), 74 Master's theses (+ 3 ongoing) and numerous Bachelor's theses. I also actively support students during their studies with advice and psychological support, write letters of reference on request and help students find jobs in industry. I am proud to say that former students work for Luxembourg companies such as Zortify, Talkwalker or have found their home in international companies such as KPMG, Price Waterhouse, IBM. I have also helped companies in finding suitable employees. At UL, I regularly mentor and support colleagues in questions around AI/Machine Learning. Namely, I have also invited scientists oreven PhD students from other UL faculties to spend time as guests in my group. For some time now, I have also extended my field of activity to students from other universities, for example Singapore University or as part of a Master thesis at the FU Berlin.

Contributing to the wider research community and broader society

I am a member of the ACM, the Cognitive Science Society and the German Cognitive Science Society and a former member of the German Informatics Society. I am a scientific reviewer for Elsevier, Leibniz, Springer, IEEE and programme committee member for more than 100 conferences, some of them the most important ones, like IJCAI, AAMAS, ACM, CogSci, ECML, and others. So far, I have organised 8 'AI Lecture Series' and several PhD workshops in the field of Artificial Intelligence and beyond. I am the author of about 100 scientific papers. I am an active member of financialcomputing.net, an innovation platform for financial informatics, and of Last-JD, a joint international PhD programme in law, science and technology. I also maintain goodcontacts with the Luxembourg and German Ethics Councils. I publish 1-2 articles per year in the Luxemburger Wort and am regularly interviewed by Radio 100,7, RTL.lu, Paperjam, Revue, and other media. I have also been a guest on a talk show on the TV programme 'Kloertext'. I have supported Luxembourg schools in Kirchberg, Dudelange and Limpertsberg for various reasons ('Chercheurs à l'école') and have participated the 'Girls Days' at the FU Berlin.

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Frédéric CLAVERT

ORCID:

https://orcid.org/0000-0002-0237-2532

Personal Statement (maximum 150 words):

Historian of the 20th and 21st centuries, I am currently investigating digital methods applied to the study of the past without forgetting the necessary rigour that I have learnt during my PhD in good old archive centres. Based on digitized and born-digital primary sources, my current research is focusing on how artefacts of collective memory can be studied on current (twitter, Facebook, etc) and past (newsgroups, 1990s forums) social media. I have been involved in the DH community since 2008, when I have joined a former Luxembourgish institution that maintained a Digital Library on the history of the European integration. I have had a non-linear career, altering between "alt-ac" and regular researcher positions. I see this as a richness, as it encourages me to practice history in original and rather new ways.

Personal details – Individual narrative profile (maximum 250 words):

I am an assistant professor in contemporary history at the Centre for Contemporary and Digital History (C^2DH, University of Luxembourg). After studying politics in Strasbourg (Institut d'Études Politiques, IEP) and Leeds, I obtained a PhD from the University of Strasbourg about Hjalmar Schacht, one of Hitler's president of the Reichsbank and minister of the Economics. After my PhD I focused on the history of central bankers, mainly in relation to the history of European integration. At the same time, as a member of the former *Centre Virtuel de la Connaissance sur l'Europe*, I started to explore the possibilities of Digital Humanities applied to history and started to do research in this field.

I turned in 2014 to the use of social media as primary sources for the historian. I explored different kind of big data-oriented methods, from social network analysis to text and data mining. I am now investigating, through collaborations with colleagues from computing, the use of machine and deep learning to explore born digital data such as newsgroups. During the Centenary of the First World War, I have collected 9 million tweets, using the DH and big data methods I have learned since 2008 to analyse them. Started as research engineer when I was at Paris Sorbonne (LabEx EHNE), and pursued in Lausanne (2015-2017) and then Luxembourg, this research project on the collective memory and commemoration of WW1 led me to the memory studies field.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

Since 2008, I have significantly contributed to the digital history field. I organised two conferences in Luxembourg around digital history (2009 and 2012) and co-organised several THATCamps (including in Paris in 2010, 2012 and 2015). Those events helped the making of the French-speaking DH field and the creation of the French-speaking DH association, *Humanistica*, of which I am a founding member and a member of its board. One of the main outputs of this community-building effort, which was at the same time a contribution to the advancement of knowledge, was the publication of the book *Contemporary history in the digital era / L'histoire européenne à l'ère numérique*, (co- edited with Serge Noiret, 2013, Bruxelles: PIE-Peter Lang). This book was then supplemented by different articles, chapters and a blog. I have been practicing digital history in parallel, thanks to the use of text mining and social networks analysis during my research on the echoes of the WW1 commemoration on Twitter, that led to several publications. More recently, I became managing editor of the *Journal of Digital History* (https://journalofdigitalhistory.org) an innovative academic journal that aims at helping digital historians write "multi-layered" (narration, code, data) data-driven articles.

Contributing to the development of individuals

I am a committed teacher, who strongly appreciates to supervise students, at all level. I have learned to be a teacher since my first teaching in 2005 and have thought at the University of Strasbourg, Paris 1 – Pantheon- Sorbonne, the EPFL and the University of Lausanne and, of course, the University of Luxembourg. I try to innovate in terms of pedagogy – for instance by using counter-factual history or by using project-based teaching when leading a digital history course, without ever forgetting that the aim of teaching is to help students structure their thinking and learn new knowledge at the same time. I am currently supervising different master theses related to European history of the 20th century. Since November 2020, I am co-supervising (with a colleague from Sorbonne Université) a PhD candidate who will base her work on massive datatoo. My role is to accompany her in the acquisition of the necessary methods to analyse her primary sources.

Contributing to the wider research community

While investigating the potential of born- digital sources and massive data, I have, together with Caroline Muller (Université Rennes 2), investigated what is the "allure" of the archive in the digital era. This research, that focuses on the different uses of computing – from the simplest to the most complicated ones – by historians, was thought at the beginning as a sort of rewriting of the classical book by Arlette Farge (*Le goût de l'archive, 1989*, translated into English: *The allure of the archive*, Yale University Press, 2015). As main output, we co-edited an online book, *Le goût de l'archive à l'ère numérique* (https://gout-numerique.net), that was written in public and open to comment. We submitted an INTER proposal (*ie* a French (ANR) – Luxemburgish (FNR) call for projects) to extend this research to investigate the discrete transformations of the profession of historian that are undergoing for a couple of decades through the intensive but sometimes invisible use of computers by our colleagues. This research has also been the occasion of strong discussions with archivists, including with the *Association des archivistes français* and a contribution to the scheduled 2021 annual conference of the *Veräin vun de Lëtzebuerger Archivisten*.

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Gerben ZAAGSMA

ORCID:

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Personal Statement (maximum 150 words):

My work can be broadly divided in two, partially intersecting, strands: with a background in modern and contemporary history, I have worked on the social, political and cultural aspects of 20th century Jewish history (including music, politics, migration, Holocaust history & memory, and Yiddish Studies). Along the way, I have simultaneously developed a keen interest in the methodological and epistemological implications of using new technologies in historical research and writing. This interest in how the digital turn affects historical research practice has led to two current research projects that investigate the politics of digitisation and the history of digital history as well as a variety of web-based projects in the past 15 years that address informational challenges for historians. Finally, on the intersection of Jewish and digital history my work charts the ways in which the field of Jewish history is developing in the digital age.

Personal details – Individual narrative profile (maximum 250 words):

Before embarking upon my PhD at the European University Institute (EUI) in Florence, I worked as a researcher at the Public History Research and Consultancy Center of the University of Groningen, the Netherlands. I then studied Yiddish at the School of Oriental and African Studies, University of London. Following completion of my PhD in September 2008, I was a postdoctoral researcher at the Department of Hebrew and Jewish Studies, University College London.

Subsequently, I worked as an editor, web developer & researcher at the Huygens Institute for the History of the Netherlands, Netherlands Academy of Arts and Sciences where I developed an online community portal for Dutch history. Between 2013-2017, I worked as a research fellow in the project *The diaries of Anne Frank. Research—Translations— Critical Edition* at the Lichtenberg Kolleg, the Institute of Advanced Study at the University of Göttingen, where I was responsible for the annotations of a new critical scholarly edition of the diaries and conducted research on Jews in hiding in the Netherlands.

I joined the C²DH in August 2017 and was Head of the Research Area Digital History & Historiography until December 2020, when it merged withthe center's DHARPA team headed by Sean Takats. Importantly, this trajectory means that sincecompleting my PhD, I have worked in various capacities, not only as a researcher, but also as editor and web developer, in and on a variety of projects.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

In the realm of digital history, I have actively contributed to conceptualising the digital turn in historical research, among other things, through introducing the notion of 'hybridity' (combining traditional/analogue and new/digital approaches in historical research practices). More recently my work has contributed to putting on the scholarly agenda two related questions and topics that frame (or should frame) debates about the digital turn in history: one is about the politics of digitisation and the ways in which the latter shapes historical research, seen from within a global context. The second engages the history of digital history, and explores the manifold ways in which new technologies shape and have shaped historical practice over the past century. This ongoing work is feeding into two peer reviewed articles and has led to several invited talks on both topics.

Contributing to the development of individuals

Between August 2017 and December 2020, I was Head of the Research Area Digital History & Historiography and member of the C²DH management team. In that function I helped to shape the direction of the center in its early stages. More broadly speaking, since October 2017 I have been a member, vice-chair and am the current Chair of the University of Luxembourg's Ethics Review Panel. In that role, I am responsible for the proper functioning of the university's ethics review process and am currently overseeing the revision of its ethics research guidelines.

Contributing to the wider research community

Over the past years, through conference planning, talks, publications and project leadership of the #DHJewish website, I played an active role in discussing the future of Jewish Studies in the Digital Age. I co-organised an expert workshop on Jewish Studies and Digital Humanities in 2017 (with the Rothschild Foundation and the Institut für die Geschichte der Deutschen Juden) where I provided opening remarks. In January 2021, I organised the first international conference #DHJewish - Jewish Studies in the Digital Age (online due to covid19) in which more than 60 colleagues presented papers and several hundred followed the sessions online. Current, I lead the project to create the web portal #DHJewish which will bring together information about digital Jewish Studies projects, news, events, and other scholarly information.

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Hichem OMRANI

ORCID:

https://orcid.org/0000-0003-1484-3028

Personal Statement (maximum 150 words):

Without data scientists' and big data analytics, we will not get valuable information about our dynamic environment. We cannot imagine a world where we cannot breathe, listen any sound in the nature, without green infrastructure or without quiet environment. I want to be the person that creates tools and new products to provide policy makers with evidence to support the design of liveable cities. At the beginning of my career, I tried to understand how cities evolve over time, and its impacts on travel behaviour. For future challenges, I extended my previous works to assess individual/population exposure to the dynamic environment (e.g., air/noise pollution, and heat temperature), differences in the population and test different policies to mitigate environmental stressors and inform policy makers and citizens.

Personal details – Individual narrative profile (maximum 250 words):

I am a research scientist at the Luxembourg Institute of Socio-Economic Research (LISER) since 2008. I have received my habilitation (2019), a full ADR (authorisation à diriger des recherches, 2018) from the University of Luxembourg, PhD (2007), Master (2004) in Computer Science from the Technology University of Compiegne (UTC-France). I have supervised several PhD and Masters students. I have served as a reviewer for several international journals.

During my LISER funded scientific leave (2016-2017), I have served as a visiting researcher at Purdue University-USA, working jointly with Dr Pijanowski, an internationally recognized specialist in the field of land change science. I have conducted research in the framework of several competitive projects supported mainly by the FNR-LUX, CNRS-FR, and FNRS-BE. My research interests include land use change dynamics, exposure to the environments and health effects.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

I designed a new framework for land use change science using the new multi-label concept. I also designed and implemented several tools for decision-makers (e.g., geo-coder of postal addresses. I was involved in mapping of air pollution, urban density of the greater region over several decades from 1990 to 2020.

Contributing to the development of individuals

I supervised several MSc/PhD students and post-docs researchers and several engineer students in their final projects.

Contributing to the wider research community

Reviewing several journal and conference papers, organising special issues in several journals such as remote sensing, and special sessions at int. conferences. Co-organizing with Dr Benoit Parmentier (USA) and Ass. Prof Marco Helbich (Netherlands) several workshops on R/python coding, remote sensing, and data analysis (e.g., workshops at the American Association of Geographers - AAG conferences).

Fonds National de la Recherche Luxembourg

Researcher CV

Name: Leendert VAN DER TORRE

ORCID: https://orcid.org/0000-0003-4330-3717

Personal Statement (maximum 150 words):

My overarching goal is to develop and investigate comprehensive formal models and computational realizations of individual and collective reasoning and rationality. I focus on innovative formal techniques with either near-term practical applications or inspiring visionary potential. For example, I use logic as an essential tool to enable machines to make rational decisions in an open and dynamic environment, to provide effective explanations to human beings, and to behave ethically and legally. Over the past few years, I have become interested in logic for new generation AI, combining knowledge-based and machine learning-based approaches. Moreover, I have developed a strong interest in cultural differences in legal and ethical explanations because, on the one hand, these notions have a strong societal impact, while, on the other hand, rigorous models are required to provide sufficient confidence in actual AI systems. To achieve these goals, I collaborate with researchers from many other disciplines and cultures.

Personal details – Individual narrative profile (maximum 250 words):

After positions in the Netherlands, Germany and France, in 2006 I joined the University of Luxembourg as a full professor for Artificial Intelligence. I became responsible for the strategic priority P1 of the University, which in 2009 led to the creation of the Interdisciplinary Center for Security, Reliability and Trust. To bring together various groups working on AI at the university, in 2009 I founded the AI RoboLab, which I headed since then. I was the head of the Department of Computer Science between 2015 and 2018, and was elected EurAI fellow (2016), member of CLAIRE Informal Advisory Group on Ethical, Legal and Social Issues (2019), board member of ESA-CLAIRE Special Interest Group on Space and AI (2020) and president of the International Forum of Computational Logic (IFCoLog, 2020).

Moreover, I was a visiting professor at Stanford University, USA in 2013 and became more interested in the entrepreneurial eco-system. I headed a project that provided a proof of concept for programming cognitive robots (ProCRbb), leading to one of the most successful spin-off companies of the university, specialized in robots for autistic children (LuxAI, 2015).

Moreover, since 2019 I am a part-time visiting professor at the Faculty of Philosophy and Cognition of Zhejiang University, China, allowing me to significantly expand my intercultural and interdisciplinary research program. In 2022 I bring together researchers, artists and the general public in the AI & Art pavilion of the university when Esch-Sur- Alzette is European Capital of Culture.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

I develop logic for new generation AI driven by the insight that intelligent systems (like humans) are characterized not only by their individual reasoning capacity, but also by their social interaction potential. From this perspective I developed input/output logic (with David Makinson and colleagues in Luxembourg) and studied, for instance, deontic logics, formal argumentation, agent logic andlogic for AI. I have been active as an editor in this community: handbooks of deontic logic andnormative systems (f2013, 2021), first volume on handbook on formal argumentation (2018), Journal of Logic and Computation (deputy editor-in- chief), Logic Journal of the IGPL, the IFCoLog Journal of Logics and their Applications, and Argumentation and Computation (member of editorial boards). Currently I am developing (with colleagues) a framework and methodology---termed LogiKEy---for the design and engineering of ethical reasoners, normative theories and deontic logics. The overall motivation is the development of suitable means for the control and governance of intelligent autonomoussystems. An expanding dataset of case studies, in which the LogiKEy framework and methodology has been applied and tested, illustrate its potential for efficient experimentation.

Contributing to the wider research community

I did my PhD in an interdisciplinary institute on electronic commerce, and now I am a member of the interdisciplinary lab on intelligent and adaptive systems (ILIAS) and the interdisciplinary center on security, reliabilityand trust. I promote and contribute to a variety of interdisciplinary artificial intelligence topics,ranging from more abstract notions such as knowledge representation, reasoning, andexplainable AI, to more applied topics, such as social robotics, AI ethics and computational creativity. I created the interdisciplinary AI RoboLab in 2009 working on social robotics, AI ethics and computational creativity. I developed collaborations and joint projects with Department of Engineering, Law, Psychology, History and Philosophy. I was the coordinator of the Horizon2020 Marie Curie RISE Network “Mining and Reasoning with Legal Norms” (MIREL, 2016-2019) and I am an editor of handbook on legal AI (In preparation). As the chairof the DEON steering committee, 2014-18) I broadened the conference from two to six disciplines. As the head of department, I contributed to the design of the interdisciplinary space master, where I promote the view that we need to address challenges in many emerging areas, such as new space, from a technological, legal and entrepreneurial perspective.

Contributing to broader society

I developed the BOID agent architecture (with colleaguesfrom Vrije Universiteit Amsterdam), and on May 2nd, 2007, I delivered my inaugural speech “Violation games: a new approach of handling norms in intelligent systems.” I developed the visualization and analysis components of the ArchiMate approach to enterprise architecture (with colleagues from CWI Amsterdam) which has become an industry standard. Moreover, Ideveloped the game- theoretic approach to normative multiagent systems (with Guido Boella from University of T orino), I contributed various results to the theory of argumentation, negotiation and collaboration among agents, and I am an editorof the handbook on normative multiagent systems (2018), Recently I am working on the use of agent theory and agreement technologies for personalized explainable AI, providing a set of techniques and methodologies aiming at explaining machine learning (ML) models, and enabling humans to understand, trust, and manipulate the outcomes produced by artificial intelligence effectively. I am in particular interested in explanations provided by and generated for children of different age classes, because the different mechanisms of reasoning more clearly be identified and distinguished in the explanations of children.

Fonds National de la Recherche Luxembourg

Researcher CV

Name: Luis A. LEIVA

ORCID: https://orcid.org/0000-0002-5011-1847

Personal Statement (maximum 150 words):

My research interests lie at the intersection of Human-Computer Interaction and Machine Learning, with an emphasis on solving problems that will help people throughout their daily lives. I have a formal academic background in Computer Science, Design, and Engineering, which I use to guide my research and create solutions that are expressive, natural, and sound. My main research area is Computational Interaction, where I combine computational thinking – abstraction, automation, and analysis – with data-driven models and methods to enable, explain, and support user interaction. I also conduct fundamental and applied research activities in Natural Language Processing and Information Retrieval.

Personal details – Individual narrative profile (maximum 250 words):

Before joining the University of Luxembourg as an Assistant Professor and Senior research scientist, I did two postdoctoral stays, one at Aalto University (Finland) and other at the Technical University of Valencia (Spain), where I also got my PhD in Computer Science.

I have 10+ years of academic experience and 5+ years of industry experience. I am also the co-founder and former CTO of Sciling, a machine learning company based in Spain. I am ranked among the top-10 Computational Interaction researchers in Google Scholar. My research has been featured in the international press, including e.g. New Scientist, Communications of the ACM, Phys.org, and Science Daily.

As a teacher and educator, my latest course was ranked among the top-10 best courses at Aalto University. I have been invited as guest lecturer abroad several times, including Aalto University and Primorska University (Slovenia).

I also have been visiting researcher at the Institute for Visualization andInteractive Systems in Stuttgart University (Germany) and the German Research Center for Artificial Intelligence (DFKI) in Saarbrücken. I am the recipient of several awards and recognitions both from industry and academia, including several outstanding reviewer recognitions and recognized contributions to outreach activities; for example, I have been recently invited as a keynote speaker in the popular “Elements of AI” course.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

My research focuses on making the most of computing systems using the least amount of information from the user. My PhD thesis, which got the extraordinary doctorate award, showed that information inherently encoded in user interactions can be leveraged in a wide spectrum of applications and tasks. For example,I have exploited mouse cursor movements to conduct large-scale usability evaluations, predictuser engagement and attention, aid website revisitation, or restyle web design. All these workshave resulted in high-quality publications in reputable scientific conferences and journals. I have developed interactive human-in-the- loop machine learning techniques to support historians in the analysis of vast historical manuscript collections, including for example keyword spotting and transcription of legacy documents, where optical character recognition simply does not work. I am the co-creator of Warped K-Means, a clustering algorithm that can handle data sequences, which are commonplace among historical data. Before it, clustering algorithms had largely ignored how data objects were produced over time. I have also contributed to the development of novel visualization techniques to optimize the organization and retrieval of large and complex datasets, balancing the so-called exploration–exploitation problem, making it possible to find suitable materials in a matter of seconds.

Contributing to the development of individuals

I have supervised several BSc and MScstudents in academia, as well as my own teammates in industry. Many of them have been very successful in their careers, and some of them have come back to me requesting further advice and/or mentoring. I also have been in advisory boards to help shortlisting students at Aalto University and to recruit new employees at Sciling, the company I co-founded in 2014. I have been responsible teacher of MSc courses that I created at the Technical University of Valencia and at Aalto University. I have been very fortunate to educate a new generation of Computer Science students and to collaborate with the best ones upon successfully defendingtheir MSc or BSc theses. Now with the University of Luxembourg, as part of their educationalstrategy, I am preparing two BsC courses and an MSc course in the upcoming master's program in data science. I am also supervising a postdoctoral researcher and a PhD student.I look forward to mentoring more people and helping them succeed.

Contributing to the wider research community and broader society

I believe research should be disseminated to society so that everyone can learn and benefit from the latest advancements. I try to accomplish this goal by participating in projects with a clear focus on technology transfer. To date, I have co-authored 2 granted patents and have participated in 15research transfer projects. Most of these projects are being exploited today by private companies and public institutions. I often review for and serve in the program committee of several ACM/IEEE conferences and scientific journals. I am associate editor for the International Journal of Human-Computer Studies, one of the flagship journals in HCI. Scilingstarted as a joint effort to bring to industry and society the latest research in machine translation and interactive techniques that I co-invented at the Technical University of Valencia. We received funding from the European Commission through the SME Instrument program (Open Disruptive Innovation Scheme), a very competitive funding scheme for entrepreneurs and small companies. At Sciling we have worked for several international companies and even the public sector, including for example Lingvanex (Russia), NetRange (Germany), and the University of Montreal (Canada), among many others.

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Marten DÜRING

ORCID:

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Personal Statement (maximum 150 words):

I am historian by training and have been working on the intersection between historical research methodology, social network analysis, computer science (mostly Natural Language Processing) and software design for more than 10 years. Computational methods applied to digitised historical sources are bringing fundamental change to historical research and publication practices. My research merges historical thinking and computational methods expressed in software design. I strongly believe in the added value of interdisciplinary research which targets a shared goal to break new ground but leaves sufficient room for discipline-specific research. Mutual respect and trust independently of disciplinary background or rank allow researchers to leave their comfort zones and are preconditions for original interdisciplinary research outputs. My future research will continue to enable interdisciplinary encounters and conduct experiments which translate historical research practices into data-driven analyses but also challenge them using statistical reasoning.

Personal details – Individual narrative profile (maximum 250 words):

My BA and MA degrees in cultural history provided me with training in traditional historical research practices. Work on my PhD in a team with social scientists and historians introduced me to qualitative data analysis (QDA) as well as social network analysis and allowed me integrate data collection and (visual) analyses into a traditional historical research workflow. My PhD project developed a workflow which used QDA methods for data collection and network visualisations for the critical exploration of such data in combination with close reading. In my time as a postdoctoral researcher at Radboud University Nijmegen I became familiar with text mining applied to humanities research in particular and with computer science research culture more generally. Both prepared me for later interdisciplinary collaborations.

As Researcher at the Centre virtuel de la connaissance sur l'Europe (CVCE) I supported the interdisciplinary research project CubRIC in my capacity as historical advisor on the creation of the first HistoGraph prototype, a graph-based system for the exploration and annotation of a corpus of documents surrounding the European integration process since 1945. In parallel, I have sought to broker interdisciplinary exchange through a number of publications as well as in my role as co-organiser of the workshop series HistoInformatics (2013-2016) which brought together computer scientists and historians.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

Since 2009 I have been active in the development of the Historical Network Research Community (https://historicalnetworkresearch.org/) and co-founded and -organised a long-running workshop (*2009) and conference (*2013) series, an open access journal (*2017) and a research bibliography as main outputs. HNR activities originally served historians who soughtto adapt social-scientific practices in network analysis to the needs of historians. Over the years, HNR became an attractive meeting ground also for researchers from neighboring disciplines who work with historical data. Today, the HNR activities attract historians, digital humanists as well as social, computer and information scientists who share an interest in network-related methods for the analysis of the past.

Contributing to the wider research community

During my time at CVCE I acted as historical consultant during the development of histograph, a tool for the graph-based exploration and crowd-based indexation of large-scale multimedia document collections (based on the previously mentioned prototype "HistoGraph"). The tool was developed around a dataset of 17.00 documents linked by metadata and co-occuring disambiguated named entities. A custom-built interface offers a close-reading perspective on the document, allows users to annotate named entities and to fix mistakes which occur during the automated entity detection and linking. A distant-reading graph visualisation reveals higher-level patterns in the data, offers path queries within the graph and the seamless switch between close- and distant reading views. Targeted at a user audience with low digital skills, histograph has the goal to make powerful automated processing and data visualisation accessible for lay audiences with low degrees in digital literacy.

Contributing to broader society

The interdisciplinary research project impresso. Media Monitoring of the Past (https://impresso-project.ch) operated with a similar mindset and brought together scholars in Digital Humanities and Computational Linguistics from EPFL Lausanne and the University of Zurich as well as a team of historians, designers and developers based at C2DH which I led. impresso (2017-2020) aimed to open up digitised collections of multilingual historical newspapers for data-driven content search, discovery and data criticism. The project created a corpus of Swiss and Luxembourgish newspapers and developed a technical architecture to facilitate data storage, enrichment and access. The project received 1.5 million EUR in funding from the Swiss National Science Foundation as part of their Sinergia program and was supported by the National Libraries of Switzerland and Luxembourg alongside *Neue Zürcher Zeitung*, *Le Temps* and other partners. The main contribution the impresso interface makes to the current status quo in interface design for historical newspapers is an iterative query-building workflow across multiple interlinked components which is driven by semantic enrichments generated during the project. This workflow encourages users to weave together insights gathered through advanced search, the exploration of ngram frequencies, named entity, topic distributions, text reuse, image similarity detection and article recommendations.

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Martin THEOBALD

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Personal Statement (maximum 150 words):

Since my doctoral studies, my research interests focused on the integration of Databases (DB) and Information Retrieval (IR). My dissertation (accompanied by the prototype implementation of the TopX search engine) focused on efficient query processing for XML documents and XPath-like queries, which can be considered as an almost classic DB topic. I also became interested in various Web applications, such as focused crawling and information extraction. The TopX prototype is a result of both these DB- and IR-related efforts, as it was specifically designed to handle complex IR-style queries with high-dimensional query expansions. With my following involvement as a Post-Doc in the Stanford Trio project, my focus was more on core DB issues, however with a variety of opportunities to work on interesting Web applications such as near-duplicate document detection and human-computer interaction (HCI) aspects. I have been diversifying my interests further toward Machine Learning, Cloud Computing and “NoSQL” Databases.

Personal details – Individual narrative profile (maximum 250 words):

I have been appointed as a Professor of Computer Science with a focus on "Big Data" by the University of Luxembourg, at the Faculty of Science, Technology and Medicine (FSTM), in 2017. I previously held positions as a Professor and Co-Director of the Institute for Databases and Information Systems (DBIS) at the University of Ulm, and as a Professor in the Advanced Database Research and Modeling (ADReM) group at the University of Antwerp.

I obtained a doctoral degree from the Max Planck Institute for Informatics in Saarbrücken in 2006 and subsequently spent two years as a Postdoctoral Researcher at the Stanford University "Infolab". Between 2008-2012, I led the research group for "Ranking and Uncertain Data Management" at the Max Planck Institute for Informatics.

I currently am head of the "Big Data"research group at the University of Luxembourg. I have served as PC member, reviewer andorganizer for more than 100 international conferences, workshops and journals, including SIGMOD, SIGKDD, SIGIR, VLDB, ICDE, CIKM, WSDM, TKDE, TODS, and many others. I have been an Area Editor for Elsevier's "Information Systems" between 2013-2018, and for PVLDB between 2020-2021. Current h-index: 32 (with more than 100 publications in Google Scholar) as of Feb. 2021.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

I received three awards in the context of my doctoral dissertation between 2006 and 2007, namely an “ACM- SIGMOD Jim Gray Doctoral Dissertation Award (Honorable Mention)”, a “GI-DBIS Dissertation Award” and an “Otto Hahn Medal of the Max Planck Society”. Among these, especially the ACM-SIGMOD award is a world-wide recognition of my scientific achievements in the area of “Databases” during my doctoral studies. Only three doctoral theses (one primaryand two honorable mentions) are selected for this every year.

Contributing to the development of individuals

Teaching Award by the University of Luxembourg, 2020 – “The Teaching Award honours outstanding teachers committed to quality teaching and contributing significantly to the academic success of their students. Students and faculty staff members nominate their candidate for the teaching award selection committee who picks the final recipient of the award.” Within our Faculty (FSTM), only two such Teaching Awards were awarded in 2020, hence I consider this award as a great recognition of my recent teaching activities at the University of Luxembourg.

Contributing to the wider research community

Google Focused Research Award (together with R. Gemulla and G. Weikum), 2011 – “Knowledge bases with entity- relationship-oriented facts are valuable assets for making sense of Internet content and for supporting applications like semantic search or text disambiguation. Projects on automatically building such knowledge bases from high quality Web sources have successfully applied two different paradigms: targeted information extraction with domain- model seeds for high-precision output, and explorative information extraction in an unsupervised manner with high recall but lower precision. Neither of the two has paid attention to the upcoming need of maintaining a knowledge base with evolving content and the entire life-cycle of knowledge management.” Google’s Focused Research Awards demonstrate a great recognition of scientific achievements across various disciplines and research institutions world-wide. The award was generously granted by Google with the amount of 500K USD over three years (between 2011 and 2014).

Fonds National de la Recherche Luxembourg

Researcher CV

Name: Martin UHRMACHER

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Personal Statement (maximum 150 words):

Being a historian, I am convinced of the benefits of interdisciplinary research approaches and the close exchange with neighbouring disciplines such as archaeology, geography and art history. My research is shaped by the method of historical regional studies in the Middle Ages and the early modern period, but also occasionally beyond. This means specifically analysing historical structures of “longue durée” in research areas of medium size in a comparative and interdisciplinary approach, using digital methods. I am interested in comparing phenomena of regional and micro-history with historical developments in a large-scale context. I was able to apply these research approaches in my publications in the fields of urban history, social and economic history, and the history of epidemics. My research interest increasingly focused on historical cartography with the analysis and decoding of historical maps as multi-layered sources for the representation of complex historical processes in space and digital historical cartography.

Personal details – Individual narrative profile (maximum 250 words):

My research methods have already been shaped during my education at the Chair of Historical Regional Studies (University of Trier) under the direction of Prof. Dr. F. Irsigler. The innovative scientific approach consists inter alia of using historical cartography for the spatial analysis of historical contexts. My dissertation, dedicated to the history of leprosories in the Rhineland from the 12th to the 18th century, benefited from this methodology. Development and analysis of digital and interactive maps as a means of gaining additional knowledge in historical research is a central pillar of my research.

Since joining the University of Luxembourg in 2003 I’ve been primarily engaged in historical research in the area of the historical Duchy of Luxembourg and the bordering territories. During this time, urban history emerged as an additional research focus. I’ve been leading research projects on Luxembourg's urban history for many years. This research benefits particularly from the close cooperation with the City of Luxembourg, especiallywith the Lëtzebuerg City Museum.

For some years now, historical spatial relations became another research interest dedicated to borders and governance in highly complex and fragmented territorial structures in the Middle Ages and early modern period. In this context, I’m engaged in the analysis and decoding of historical maps, using digital tools and techniques.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

There is the digital and interactive historical town atlas of Luxembourg (https://www.luxatlas.lu), which is the result of the research project Villux X, that I'm leading for five years (just received another grant for two years prolongation). The atlas has been created using WebGIS and open source software. It takes a leading role internationally, as it is the only historical town atlas so far that has been published solely online and can therefore best exploit the potentials of a digital and interactive publication. It traces thehistory of the city of Luxembourg and illustrates the stages of its development over the last 450years. The historical town atlas is an innovative research tool to gain knowledge about the urbandevelopment, its conditions and characteristics and the underlying economic, social and political conditions. It brings together a collection of maps, explanatory texts, and chronological tables and images, which all trace the history of the city and illustrate the stages of its development. For example, different time layers can be combined and compared with each other using specially developed data visualization techniques. In the meantime, the Luxatlas has become an extremely successful, much-used website for historical research, municipal administration, citizens, teaching and tourism.

Contributing to the development of individuals

My teaching experience benefits from the research results, the fruitful exchange with the graduates I supervise and co-supervise (Bachelor- Master- and Phd-level) and the long-standing national and international collaborations. As a member of the Digital History and Hermeneutics (DTU), I supervised the Thesis of Floor Koeleman *Visualizing Visions. Re-viewing the seventeenth-century genre of constcamer paintings*. The central aim of this excellent research work was to conduct a holistic study of the seventeenth-century genre of constcamer paintings, and to explore how modern digital tools can assist in this process. Another doctoral student, Karl Solchenbach, is working under my supervision on *A comparative Analysis of Historical Maps of the Rhine-Meuse-Moselle Area from the late 15th Century until the End of the Holy Roman Empire*. To do so, he is developing new digital cartometric methods. In my teaching I convey interdisciplinary approaches and through close cooperation with museums and archives as well as frequent excursions, I bring students into direct contact with cultural institutions and research objects. They are also given the opportunity to publish first own research projects, for instance in the digital historical town atlas of Luxembourg "Luxatlas.lu".

Contributing to the wider research community

The project Villux IX, co-financed by the Cityof Luxembourg and the University of Luxembourg, was dedicated to the study of cartographic sources that have received little attention in historiography so far. The main focus was on the analysis and decoding of historical maps as multi-layered sources for the representation of complex historical processes in space. On this basis an innovative source-specific methodologyhas been developed for the interpretation and reconstruction of spatial contexts in late medieval and early modern periods. Major outcomes are the proceedings of the international conference *Extra Muros. Vorstädtische Räume in Spätmittelalter und Früher Neuzeit*, ed. by G. Thewes/M.Uhrmacher, Vienne/Cologne/Weimar 2019, the peer-reviewed article *Der Pyrenäenfrieden von 1659 und seine Umsetzung im Spiegel der Kartographie. Zur Analyse der Darstellung komplexer dynamischer Prozesse im Raum* which uses a case study to show how historical maps were constructed for political reasons, and the programmatic article *Die Darstellung von Wäldern im Rhein-Maas-Moselraum auf historischen Karten des späten 15. und des 16. Jahrhunderts in the proceedings of the international conference "La forêt en Lotharingie médiévale" (2016).*

Fonds National de la Recherche Luxembourg

Researcher CV

Name: Pascal BOUVRY

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Personal Statement (maximum 150 words):

Full Professor in Computer Science at the University of Luxembourg and CEO of Luxembourg National HPC centre, I aim at contributing to new knowledge in the field and transferring it to society by education and innovation. With 30 years of experience in the fields of Artificial Intelligence and Combinatorial Optimization, my team develops advanced techniques and algorithmics for solving hard and large-scale problems. The latest developments rely on hybridization of nature-inspired techniques with learning methods and proved to be successful in UAV coordination, Private Equity Management, Bioinformatics, and Digital Hermeneutics. The success of these solutions is proven by a large number of awards (US Navy, European Investment Bank, etc), publications in high-impact venues, and real-world deployment. My team also provides services to the community in matters of High-Performance Computing. I am now looking forward at to solve hard problems using and developing new optimisation and learning techniques.

Personal details – Individual narrative profile (maximum 250 words):

During my Master degree in Computer Science at the University of Namur, Belgium, I developed a Debugger for the Meganode, a 128 transputer network at the LMC-IMAG laboratory in Grenoble, France. After obtaining a French grant (MRT) for my PhD, I designed, implemented and validated a set of new algorithms ranging from exact ones, to heuristics and meta-heuristics for solving scheduling problems. Part of these algorithms were incorporated into industrial solutions (Archipel-Telmat).

Then, I went on having gained a grant from the Dutch Government(NWO) and worked in CWI (Amsterdam, NL) on the Manifold coordination language. I designed and developed in that context a new visual programming language (Visifold) and also conceived distributed optimisation frameworks and algorithms for network computing. I gained industrial experience as manager of the technology consultant team in Brussels for FICS (belonging to S1corp), a world leader in electronic financial services.

Next, I went on as CEO and CTO of SDC, a Saigon-based joint venture between SPT (the second telecom operator in Vietnam), Spacebel SA (a Belgian leader in Space, GIS and Healthcare), and IOIT, a public research and training centre. After that, I had the opportunity to move to Montreal as VP Production of Lat45 and Development Director for MetaSolv Software, a world-leader in Operation Support Systems for the telecom industry (e.g. AT&T, Worldcom, Bell Canada, etc).I am nowadays serving as CEO of Luxprovide SA, the Luxembourg National HPC center, part of EURO-HPC, and Professor of Computer Science (parallel computing/optimisation).

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

I aimed at merging optimisation techniques, including nature-inspired methods, with machine learning for discrete optimisation problems, such as drone swarming or private equity management. The resulting algorithms lie between applied mathematics and computer science, such as operations research, algebra, graph theory,network science, game theory, evolutionary computing, machine learning. As a first key result, the creation of Loosely Coupled Genetic Algorithms (LCGA) in collaboration with Prof. Franciszek Seredynski from the Polish Academy of Science. These new algorithms are efficiently hybridizing game theoretical approaches with genetic algorithms. One of the techniques consists in slightly changing the problem (coordination between players, or adding additional incentives) to convert Nash Points into Global Equilibria. Another example of new algorithms is the extension of the work done by Marco Dorigo on Ant Colonies by defining repulsive pheromones and coupling them with the chaos theory for bringing deterministic behaviour to an initially stochastic algorithm. Revisiting Genetic Programming through higher abstraction levels such as gene expression programming, using heuristics as basic building blocks and coupling them with machine learning techniques (learning to optimise), lead to my latest generations of algorithms. I am also part of the editorial board of Elsevier SWEVO (Swarmand Evolutionary Computation) journal.

Contributing to the wider research community

Considering the computing-intensive aspects of these solutions, I also created and managed the High-Performance Computing service (over 600 users) of the University. This work aside from leading a set of system administrators also allowed me to research on related problems, such as energy-efficient data centres. Which was yet another way to show the bridge between academy and the real world, using real-world problem to steer the research direction. New techniques were created for bringing digital trust to cloud-based solutions, and new generation of middleware/resource management techniques for minimizing the electrical costs. The University of Luxembourg was then able to appear in the Green500 benchmark, providing open-source cloud simulator (Greencloud), take part in the ESFRI PRACE network and work with other EU experts on the H2020 PRACE6IP project. I am also part of the editorial board of IEEE Transactions on Sustainable Computing. The work operated in that context also was truly instrumental in winningthe hosting of one of the EURO-HPC petascale solutions in the country. Which has been recognized by having the ministries of State and Economy asking me to bootstrap the new national centre as CEO.

Contributing to broader society

I am particularly proud of having a mixed industrial and academic background, having worked on 3 continents, trying to bridge both worlds by providingreal high-level academic output, while also bringing a strong impact on society. I indeed believe that there is a true continuum between theoretical and applied research. The new master in Technopreneuship I created for the University in collaboration with our National Standards' Body(ILNAS) is a concrete instance of this bridge. This master is natural follow-up of 2 certificates of18 ECTS that were operated by academics, industry and standardization professionals. Part of the content is resulting of a 4- year joint research programme with the ILNAS that involved 3 PhD students and one postdoctoral fellow. The master programme receives the labels of European standardization bodies CEN-CENLEC and ETSI. The first instance of the corresponding research programme addressed key ICT topics such as Big Data (community detection/clustering), cloud computing (cloud pricing), and Internet-of-Things (Distributed solutions for air traffic control for drones). The new programme addresses ICT (ArtificialIntelligence), Construction (Building Information Models), and Aerospace (UAVs).

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Sean TAKATS

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Personal Statement (maximum 150 words):

Trained as a social scientist and with deep experience in the technology sector, I have spent the past two decades conducting research at the intersection of traditional academic study and cutting-edge software, and also advancing the state of the field by leading and participating in teams that develop some of the world's top tools for researchers. As a senior researcher fortunate enough to have most of the traditional goals of university promotion behind me, I am now able to concentrate fully on the aspects of my career that have proven most rewarding along the way: developing high-risk experimental research projects and building and mentoring diverse teams of researchers and technicians who launch exciting research initiatives in their own right.

Personal details – Individual narrative profile (maximum 250 words):

I have an educational and occupational background that distinguishes me from most humanities professors. I studied economics as an undergraduate and developed an affinity for quantitative methods that I have carried forward to my humanities research. Self-taught in early web programming, I joined IBM after my BA, where I developed software prototypes and learned and deployed server-side scripting languages and systems architectures.

After three years at IBM I returned to academia to pursue a PhD in history, though I continued to work as a software developer for a fintech start-up. My PhD research outwardly focuses on traditional European cultural history, with close reading of texts; behind the scenes, however, I wrote code to help meprocess source material at scale. After completing my dissertation, I took a post with traditional publication and teaching expectations; I simultaneously worked in a lab where I applied my technical and quantitative skills, first as a solo researcher, soon as leader of projects involving the creation of production-grade software, and eventually as research director and co-founder of a non-profit corporation that sustains the development of mission-critical open-source research tools.

After earning tenure in the USA, I was recruited to Luxembourg where I have expanded the scope of my lab as a transatlantic enterprise that draws on the complementary strengths of American and European systems. Today my focus is on establishing what comes easily to me – translating between the worlds of technology and academic research – as a normative practice among students, technicians, researchers, and faculty.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

The centerpiece of my current research program, the Digital History Advanced Research Projects Accelerator (DHARPA) assembles a team of diverse backgrounds – technicians, researchers, students – who work together closely develop new research software and share their expertise with outsiders seeking assistance in their own humanities research programs. DHARPA's software deliverables provide the framework for the project's most ambitious goal: to offer professional development opportunities for all team members to launch successful careers of their own. Postdoctoral fellows offer group feedback on each other's grant proposals; students and researchers rotate through the public-facing roles (e.g. outreach) to raise their professional profiles; all team members participate in hiring decisions. DHARPA marks the formal institution of the informal practices I have followed for well over a decade: offering junior researchers the opportunity to serve as co-PI on existing grant-funded projects to build their CVs to enable graduating" to full PI in a subsequent funding round (e.g. *PressForward*, *Tropy*); creating deputy leadership positions to offer leadership experience opportunities; encouraging technicians to develop their own ideas into successful research proposals.

Contributing to the development of individuals

Between August 2017 and December 2020, I was Head of the Research Area Digital History & Historiography and member of the C²DH management team. In that function I helped to shape the direction of the center in its early stages. More broadly speaking, since October 2017 I have been a member, vice-chair and am the current Chair of the University of Luxembourg's Ethics Review Panel. In that role, I am responsible for the proper functioning of the university's ethics review process and am currently overseeing the revision of its ethics research guidelines.

Contributing to the wider research community

My core intellectual output is centered around the development and dissemination of research software. I have been PI on over USD 9 million of research grants, most of which have funded the creation of software aimed not just at humanities scholars but the general research community. The most successful of these research projects is Zotero (https://zotero.org), with over 7 million users worldwide, almost 2 billion research objects uploaded by users, and over 3 million public and private collaborative research groups. Since 2007 Zotero has served as the reference in the market despite intense competition from commercial publishers, and it currently drives innovation in the entire sector: technology that Zotero introduced is used by over 50 competing tools, lowering the barrier to entry for new research software. Zotero is fully open source, with an application programming interface (API) enabling direct integration into the entire research ecosystem. Zotero is itself software used by researchers to consume and produce their own research; the network effects are incalculable. More recently my team created Tropy (https://tropy.org), a more specialized tool for archival research; since its launch in 2017, Tropy has gained thousands of users and is the leading software platform for archival research.

Fonds National de la Recherche Luxembourg

Researcher CV

Name:

Valérie SCHAFER

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Personal Statement (maximum 150 words):

From infrastructures and standards to social media and web archives, the history of the Internet, the Web and digital cultures is constantly developing, as is my research. I have contributed to the development of these fields over the past 15 years, and there is still a lot to collectively achieve with the huge number of web archives available, the emergence of methodologies based on distant reading and computational tools, the need to better understand (and teach) born-digital heritage as a source and to ensure the sustainability of digital studies. Having been involved in interdisciplinary centres since 2010 (CNRS, C^{2}DH), I strongly believe in hybridisation of methodologies, reflexivity, constant renewal, sharing of expertise and collective intelligence. This is one main reason for my participation in the DTU Pride project, since it gives me the opportunity to exchange expertise with computer scientists, improve data literacy and stimulate innovative research.

Personal details – Individual narrative profile (maximum 250 words):

I taught history and geography at secondary school level for 10 years while working on a PhD in the history of innovation at Paris-Sorbonne University, which I defended in 2007. In 2010 I joined the CNRS as a researcher and developed a strong interest in the potential of web archives as new sources and in digital humanities.

I obtained my *Habilitation à diriger des recherches* (HDR) in 2015 and in February 2018 I joined the University of Luxembourg to pursue my twofold vocation for research and teaching as a member of the C^{2}DH, a centre with a focus on digital history that fits perfectly with my research areas. As a Professor in Contemporary European History with specific expertise in the history of media and technology, I'm also keen to develop collaborative research at European level (current WARCnet project or Mercator Fellow with the University of Siegen), while striving to maintain an effective work-life balance (I have 3 children, including a disabled teenager).

I have developed my expertise through regular cooperation with web archivists and industry (member of Orange and Afnic Scientific Councils). My publications reflect my interest in digital cultures, both from a historical perspective and in relation with contemporary issues (Wikipedia, Net neutrality). I have also explored the history of IT in conjunction with gender history and have incorporated these issues into my teaching. I'm currently increasingly interested in digital sustainability, a key challenge with repercussions for our past, present and future.

Key outputs, contributions, and achievements (maximum 200 words per item):

Contributing to the generation of knowledge

In 2015, my HDR was one of the first studies to make full use of web archives. I have been able to make a pioneering contribution to this process in several ways: as a member of the RESAW European network; with the co-creation of the journal *Internet Histories* in 2017; by leading research projects such as Web 90 and ASAP on the born-digital heritage related to the 2015 terrorist attacks in France; through my publications; and also, by regularly co-editing special issues of journals and books. This enabled me to contribute a perspective on a less US-centric history of networks, looking at the cultures of engineers and users and exploring alternative avenues (for example Minitel) and transnational approaches. The 2016 INA award for my HDR and the Mahoney Prize the same year for an article I co-authored with A. L. Russell, together with the various grants obtained, serve as an encouragement to continue developing my research, presenting the results in publications, at international conferences and also furthering knowledge by organising conferences (ToE 2019, RESAW 2021, etc.) and developing virtual guided tours through web and audiovisual archives (at the BnF and Ina).

Contributing to the development of individuals

As head of the Contemporary European History team (app. 18-20 scholars) and a member of the management team at the C^{2}DH, I am committed to my centre and the University of Luxembourg. I am Deputy Course Director of the Master in European Contemporary History, a member of the jury for internal promotions and part of the UNIVERSEH European teaching project. I participate in the organisation of research seminars (including the VIRAL seminar at the C^{2}DH). I currently supervise 2 PhD students and I will shortly be taking on a third with a DFG-FNR funded project, Popkult. I also supervise 2 postdoctoral researchers and 3 Master's student assistants. I am actively involved in teaching activities and I regularly update my course material, having taught history of media and technology at Sorbonne University (Bachelor level), communication studies at Paris 2 Panthéon- Assas (Bachelor level) and history of gender, history of computing and European historiographies at the UL, where I also currently conduct a research seminar on Digital Europe, running over 3 semesters. I was a referee for academic promotions in the US and the UK in 2021 and part of a selection committee in Denmark in 2021.

Contributing to the wider research community

I have always tried to lead joint projects (e.g. Web90 and ASAP at the CNRS, WARCnet (as co-PI) and HIVI at UL) or participate in such projects (OPERAS-P, UNIVERSEH, etc.) and to encourage joint publications (special issues for *Internet Histories*, *Le Temps des Médias*) and co-edited books (*Women, Gender and ICTs*; *Digital Roots* (recently published), etc). Some of these publications are related to academic events I co-organised (recently the Tensions of Europe conference in 2019 at UL or the 4th RESAW conference in 2021, both funded by the FNR). I contribute to the research community as a vice-chair of the ECREA Communication History Section, a General Secretary of the French Society for Media History, a long-standing member of the RESAW network, a member of the Scientific Council of the Orange Group and a member of the advisory board for the European project HEXA-X, an editor of the academic journal *Internet Histories*, a member of the editorial boards for *Le Temps des Médias* (in charge of the Publications section), *Flux* (in charge of Varia) and the *Journal of Digital History*, or a jury (2021-2024) of the Mahoney Prize (SIGCIS).