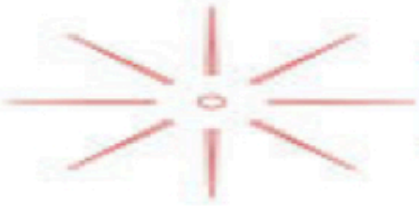
ILIAS Distinguished Lecture Series 2017

FINAL REPORT

Pascal Bouvry
Raymond Bisdorff
Christoph Schommer
Ulrich Sorger
Martin Theobald
Leon van der Torre



ILIAS

UNIVERSITÉ DU LUXEMBOURG

ILIAS Distinguished Lectures 2017

Final Report

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December 2017

WELCOME

The **ILIAS** Research Lab (see **ilias.uni.lu**) is part of the *Department of Computer Science* of the University of Luxembourg. **ILIAS** research and teaching activities are concerned with **Artificial intelligence** in general, the theoretical foundations and the algorithmic realisation of information processing, e.g., Machine Learning, Decision Support, Big Data Management, Data Science, and Reasoning in complex and dynamic environments given limited resources and incomplete or uncertain information. **ILIAS** fosters on fundamental and applied research and lives a cross-disciplinary thinking by common research projects with other faculties and departments of the University as well as with all interdisciplinary Centres (LCSB, SnT, and C2DH). Moreover, the High-Performance-Centre (HPC) is headed by Prof Bouvry.

The **ILIAS Distinguished Lectures** are an initiative by the **ILIAS** Research Lab. The lectures foster on stimulating and motivating a scientific and interdisciplinary exchange as well as an outreach. It has been a pleasure that not only Computer Scientists followed the lectures but also Computer Engineers (SnT), Mathematicians, and a diverse number of colleagues of the Faculty of Humanities.

ORGANISATION

Each talk had been scheduled to a 45-60 minutes 15 minutes of questions and answering (Q&A). All in all, more than 400 listeners followed the 12 talks, where the number of attendees varied between 25 and 70. 8 of the speakers have come from Europe, whereas 2 have been from the US, 1 from Asia (Thailand), and 1 from South America (Brazil).

On the following pages, you will find a summary of the talks as well as the contact details of the speakers.

Luxembourg, December 2017

30 JANUARY 2017: PROF JAMES COCHRAN

Invited Speaker: James Cochran, Professor of Statistics, Department of Computer Science, University of Alabama, USA.

Title: The importance of Collective Science

Time: Monday, 30 January 2017, 15h00

Place: Room E.112 (Campus Kirchberg)

ABSTRACT

The scientific method, which is embodied by statistical inference, is the heart of who we are and what we do as an academic community (which is why some, including me, argue that statistics is the purest of the sciences). Unfortunately, although we may individually think and act scientifically, collectively we often fail to do so. This has led in numerous instances to nonscientific collective behaviour. In addition to dramatically retarding the progress of science, this collective behavior has led to misunderstanding of science by the non-scientific community, co-opting of science by the business community, and poor decision making by policy makers those who have relied on the results of our research efforts. In this talk I will address the lack of collective scientific behaviour in research on the relative age effect and the ramifications that have resulted. Specifically, I will discuss the i) lack of appreciation for results that are not statistically significant, ii) disregard for conditions that are necessary for establishing a relationship between an antecedent event and a consequent event, and iii) failure to consider, establish, and test appropriate null and alternative hypotheses. I will also present what I believe are appropriate corrective measures.

BIOGRAPHY

James J. Cochran is Professor of Statistics, Rogers-Spivey Faculty Fellow, and Head of the Department of Information Systems, Statistics and Management Science at The University of Alabama. He earned a PhD in Statistics from the University of Cincinnati in 1997, and he has been a Visiting Scholar with Stanford University, the University of South Africa, the Universidad de Talca, and Pôle Universitaire Léonard De Vinci. Professor Cochran was a founding co-chair of Statistics Without Borders and a member of the founding committee for INFORMS Pro Bono Analytics initiative. He established INFORMS' Teaching Effectiveness Colloquium series and annual case competition. In 2005 Professor Cochran established the International Education Workshop series; through this series colloquia have been held in Uruguay, South Africa, Colombia, Tanzania, Argentina, Kenya, India, Fiji, Croatia, Nepal, Cuba, and Mongolia (with plans for upcoming colloquia in Moldova, Madagascar, and Romania). In 2008 he organized the 2008 ORPA Conference on Using Operations Research to Address Urban Transport and Water Resource

Management Issues in Africa. Professor Cochran is founding Editor-in-Chief of the Wiley Encyclopedia of Operations Research and the Management Sciences and the Wiley Series in Operations Research and Management Science as well as the forthcoming Guide to the Analytics Body of Knowledge. He has published over forty research articles and a dozen book chapters, and he is coauthor of seven textbooks in statistics, operations research, and analytics. He has served as a consultant to a wide variety of corporations, government agencies, and not-for-profit organizations around the world. He served as Editor-in-Chief of INFORMS Transactions on Education and serves on the boards of several journals. In 2006 Professor Cochran was elected to the International Statistics Institute, in 2008 he received the INFORMS Prize for the Teaching of OR/MS Practice, in 2010 he received the Mu Sigma Rho Statistical Education Award, and in 2011 he was named a Fellow of the American Statistical Association. In 2014 he became the 86th recipient of the American Statistical Association's Founders Award, and in 2015 he received the Karl E. Peace Award for outstanding statistical contributions for the betterment of society.

20 MARCH 2017: MADY DELVAUX-STEHRES

Invited Speaker: Mady Delvaux-Stehres, European Parliament

Title: Civil Law Rules on Robotics

Time: Monday, 20 March 2017, 10h00

Place: Campus Belval, Maison du Savoir, Room MSA-E04-4.020

ABSTRACT

Social assistive robots, cyber-physical systems in Industry or Artificial Intelligence (AI) are no longer a concepts in science fiction. We are living through a new Industrial Revolution and it is changing our society. In this context the new agents surpass current laws and now it is necessary to adapt civil rules and to create robot regulations to face the new scenario.

BIOGRAPHY

Mady Delvaux-Stehres est députée européenne luxembourgeoise depuis mai 2014. Membre du Groupe des Socialistes & Démocrates au Parlement européen, elle est élue Vice-présidente de la commission des affaires juridiques et suppléante de la commission des affaires économiques et monétaires. Elle fait également partie du comité consultatif sur le code de conduite des députés européens. Entre 1989 et 2014, Mady occupe plusieurs postes ministérielles. Entre 2004 et 2014, elle est Ministre de l'éducation nationale et de la Formation professionnelle. En tant que Ministre de la Sécurité sociale, des Transports et des Communications de 1994 à 1999, elle s'occupe entre autres de la mise en place de la nouvelle assurance dépendance, de la réorganisation des chemins de fer d'aprés les directives européennes et de la libéralisation des services téléphoniques. Nommée en 1989 secrétaire d'état à la Santé, à la Sécurité sociale, à la Jeunesse et à l'éducation physique et aux Sports, elle y engage notamment la réforme de l'assurance maladie. De 1999 à 2004, Mady est membre de la Chambre des députés. En octobre 1987, elle est élue pour la premiére fois conseillére communale de la Ville de Luxembourg, mandat que les électeurs lui confient à nouveau en 1999. Pendant toutes ces années, Mady est active au sein des Femmes socialistes. Aprés ses études de lettres classiques à la Sorbonne, Mady est professeur au Lycée Michel Rodange à Luxembourg-Ville jusqu'en 1989, lorsqu'elle est nommée au gouvernement. Mady est née le 11 octobre 1950 à Luxembourg-Ville.

27 MARCH 2017: PD DR CHRISTOPH BENZMÜLLER

Invited Speaker: Prof Christoph Benzmüller, PD, Dr. habil, Dept of Mathematics and Computer Science, Freie Universität Berlin, Germany

Title: Computational Metaphysics: The Virtues of Formal Computer Proofs Beyond Maths

Time: Monday, 27 March 2017, 16h00

Place: Maison du Savoir, Room 04-4.020, Campus Belval

ABSTRACT

Formal computer proofs - irrespective of being developed interactively with modern proof assistants, fully automatically by automated theorem provers, or in a combination of both – are still rather unpopular amongst many mathematicians. Benzmüller will challenge this stance and point to recent success stories of computer-assisted proofs in maths and beyond. In particular, he will demonstrate how the rigorous assessment of rational arguments in philosophy can be fruitfully supported by modern theorem proving technology. A prominent example includes the "Ontological Argument for the Existence of God" for which even relevant new insights were recently revealed by automated theorem provers. The latter research activities have inspired the conception of a new, awarded lecture course on "Computational Metaphysics" at Freie Universität Berlin which brings together students from computer science, maths and philosophy.

BIOGRAPHY

Christoph Benznüller is affiliated as Privatdozent for Computer Science and Mathematics with Freie Universität Berlin and Saarland University, Saarbrücken. Currently, he is visiting University of Luxemburg. Previous research stations of Christoph include Stanford University, USA (visiting scholar), Articulate Software, USA (senior researcher), International University of Germany, Bruchsal (full professor), University of Cambridge, United Kingdom (senior researcher), Saarland University (associate professor), University of Birmingham, UK and the University of Edinburgh, UK (postdoc). Christoph received his PhD (1999) and his Habilitation (2007) in computer science from Saarland University. His PhD was partly conducted at Carnegie Mellon University, USA. In 2012, Christoph had been awarded with a Heisenberg Research Fellowship of the German National Research Foundation (DFG). Christoph is an expert in higher-order automated and interactive theorem proving, which he utilises as a basis for an approach towards universal logic reasoning. His broader interests concern all aspects of knowledge representation and reasoning. Moreover, Christoph is well known for his interdisciplinary applications. Most recently, for example, he has pioneered, together with colleagues, the area of computational metaphysics. Christoph is trustee and vice-president of CADE (Conference on Automated Deduction), board member of AAR (Association of Automated Reasoning) and spokesman of the section Deduction Systems of the Gesellschaft für Informatik. He serves in various further functions (chair, editorial board, steering committee, trustee, etc.) for various conferences and organisations.

3 MAY 2017: PROF RAYMOND BISDORFF

Invited Speaker: Raymond Bisdorff, Full Professor of Computer Science, Dept of Computer Science, University of Luxembourg.

Title: Algorithmic decision theory for solving complex decision problems

Time: Wednesday, 3 May 2017, 16h00

Place: Maison du Savoir, Room 04-4.020, Campus Belval

ABSTRACT

The objective of Algorithmic Decision Theory (ADT) is to improve the ability of decision makers to perform well when facing these new challenges and problems through the use of methods from theoretical computer science, in particular algorithmic methods. The primary goal of ADT is hence to explore and develop algorithmic approaches for solving decision problems arising in a variety of applications areas. Examples include, but are not limited to:

- Computational tractability/intractability of social consensus and multiple criteria compromise functions
- Improvement of decision support and recommender systems
- Development of automatic decision devices including on-line decision procedures
- Robust decision making
- Learning for multi-agent systems and other on-line decision devices

This presentation will focus more specifically on multiple criteria decision aiding methodology, the actual research field of the author.

BIOGRAPHY

Raymond Bisdorff holds an LBA Degree in Business Administration from the University of Liége, Belgium (1975), a MScBA (NATO Graduate Degree Apprenticeship in Systems Sciences grant, 1975-1978) and a PhD in Operations Research (OR), supervisor Prof. B. Roy, from the University Paris-Dauphine (1981). He holds, furthermore, a PhD in Management Sciences from the University of Liége, Belgium (2002). He is since 2003 full professor of Applied Mathematics and Computer Science at the University of Luxembourg, where he teaches courses on algorithmic decision theory, multiple criteria decision aiding, computational statistics and discrete mathematics.
He served the international OR community as president of ORBEL - the Belgian OR society (2008-2010), vice-president of EURO - the Association of European OR Societies (1997-2000) and vice-president of IFORS -the International Federation of OR Societies (2005-2007). He was an honourable collaborator

of the Institute of Mathematics at the University of Liége (1996-2005), and of the Polytechnical Faculty of Mons (2010-2017). In 2004, he received an honour diploma from HELLORS -the Hellenic Operational Research Society- for chairing the international Programme Committee of the XXth EURO'2004 Conference, Island of Rhodes.
His main research interest is focused on outranking based decision aiding algorithms for selecting, ranking, sorting or rating, and clustering with multiple incommensurable performance criteria of uncertain significance and/or missing data (see http://sma.uni.lu/bisdorff/research.html). His major articles appeared in EJOR, Computers & OR, 4OR and in JMCDA (see http://sma.uni.lu/bisdorff/publications.html).

9 MAY 2017: PROF DOV GABBAY

Invited Speaker: Prof Dov Gabbay, Emeritus Professor, Augustus de Morgan Professor of Logic, King's College London, UK, and Professor, Bar-Ilan University, Israel.

Title: Weaponizing the Fallacies: Human Effective Argumentation - The Next Step in the Evolution of Logic

Time: Tuesday, 9 May, 16h00

Place: Maison du Savoir, Room 04-4.310, Campus Belval

ABSTRACT

This lecture is about weaponizing the fallacies, and offering them as the new evolutionary logic for the 21^{st} Century. Logicians since Aristotle considered the fallacies as wrong arguments which look correct but are not. They classified them into groups, discussed them and left them by the side-lines of logic as failures. Modern society, with the rise of the internet, Twitter, Facebook and YouTube showed the fallacies as most used and most effective in argumentation and debate. If this is the way humans reason and think then we need to develop the logical theory of the fallacies and legitimise them. This manifesto outlines our approach to the new logic of the 21^{st} century- The systematic use of the fallacies in argumentation and debate as practiced by people in the mass media.

BIOGRAPHY

Dov Gabbay is a Full Professor of the Bar-Ilan University, Israel, and an Emeritus Professor of the Augustus De Morgan Professor of Logic (Emeritus), King's College London. Dov received Doctor Honoris Causa from the Université Paul Sabatier, Toulouse III and from the Agder University, Norway. He is also a Professor of Computer Science Ashkelon College Israel. Further positions are/were:

- Instructor, Hebrew University of Jerusalem
- Assistant Professor of Philosophy, Stanford University
- Associate Professor of Philosophy, Stanford University
- Associate Professor, Bar-Ilan University
- Lady Davis Professor of Logic, Bar-Ilan University
- Professor of Computing, Imperial College, London

- Professor of Computing, Professor of Philosophy, Augustus De Morgan Professor of Logic, King's College, London.
- Special Professor Bar Ilan University
- Professor of Computer Science, Ashkelon College, Israel.
- SERC Senior Research Fellowship at Imperial College Leverhulme Major Research Fellowship at King?s College
- Foreign Fellow of the Royal Society of Canada (FRSC) Fellow of the Alexander von Humboldt
- Foundation (FAvH) Fellow of the Royal Society of Arts (FRSA)
- Visiting Member of the Royal Society and Visiting Research Professor, Mathematics Institute, University of Oxford.
- Visiting Research Professor of Logic and Language, University of Tübingen
- Visiting Research Professor of Logic and Language, University of Munich
- Visiting Professor of Logic , University of Stuttgart Research Professor, Max-Planck Institute, Saarbrücken.
- Visiting Professor of Philosophy, King's College London Visiting Professor, London
- School of Economics Visiting Senior Researcher, University of Manchester
- Visiting Professor, University of Luxembourg.
- Adjunct Professor, University of Georgia
- Visiting Research Professor, University of Stuttgart
- Chairman, Department of Mathematics and Computer Science, Bar-Ilan University. Pro-Rector for Public Relations
- Dov Gabbay is one of the world?s most active and influential researchers in logic. He has authored over four hundred and fifty research papers and over thirty research monographs.
- He has initiated several new and active research areas.
- He is editor of several international Journals, and over 50 Handbooks of Logic.
- Chairman and founder of several international conferences, Executive of the European Foundation of Logic Language and Information, and President of the International IGPL Logic Group.
- Founder, Executive and Vice President of the International Federation of Computational Logic, (UK Charity, Number 1112512).
- He is one of the four founders and council member for many years of FoLLI, the Association of Logic, Language and Information. Now retired and Life Member.

5 JULY 2017: PROF DANIEL KUDENKO

Invited Speaker: Daniel Kudenko, Professor of the Dept of Computer Science, University of York, UK.

Title: Abstract Markov Decision Processes for Reinforcement Learning

Time: Wednesday, 5 July 2017, 15h00

Place: Campus Belval. Maison du Savoir, Room 04-4.020, Campus Belval

ABSTRACT

While reinforcement learning (RL) had recent great successes in game AI and other decision making tasks, there are still two major challenges:

- Scaling up RL to complex tasks
- Assuring properties such as safety of the learning process and the learning result.

In this talk, I will show how abstract Markov Decision Processes, reward shaping, and quantitative verification can be used to tackle these challenges.

BIOGRAPHY

Daniel Kudenko is a member of the Computer Science faculty at the University of York. He got a Ph.D. from Rutgers University and a Masters degree from University of the Saarland, Germany. His research interests include machine (reinforcement) learning, multi-agent systems, user modeling, and artificial intelligence for games and interactive entertainment. Within these areas, he published more than 80 peer-reviewed papers, and has been a member of numerous program committees. Dr Kudenko is currently heading the Reinforcement Learning Group, is carrying out work in Games, Interactive Entertainment and Drama, and is a member of the Artificial Intelligence Research Group.

6 SEPTEMBER 2017: PROF MANOLIS KOUBARAKIS

Invited Speaker: Manolis Koubarakis, National and Kapodistrian University of Athens

Title: Big Linked Geospatial Data and its Application to Earth Observation

Time: Monday, 6 September 2017, 15h00

Place: Campus Belval. Maison du Savoir, Room 4.020.

ABSTRACT

Terabytes of geospatial data have been made freely available recently on the Web. For example, data from gazetteers such as Geonames, maps from geospatial search engines like Google Maps and OpenStreetMap, and user-contributed content form social networks such as Foursquare.
Some particularly important rich sources of open and free geospatial data are the satellite programs of various countries such as the Landsat program of the US and the Copernicus programme of the European Union. Satellite images can be utilized in many applications with financial and environmental impact in areas such as emergency management, climate change, agriculture and security. This potential has not been fully realized up to now, because satellite data "is hidden" in various archives operated by NASA, ESA and national space agencies. Therefore, a user that would like to develop an application needs to search in these archives, discover the needed data and integrate it in his application. In this talk we show how to "break these silos open" by publishing their data as RDF, interlink it with other relevant data, and make it freely available on the Web to enable the easy development of geospatial applications. This work has been funded by EU projects Copernicus App Lab, Melodies, Optique, LEO and TELEIOS. More information can be found in the following magazine article http://cgi.di.uoa.gr/ koubarak/publications/2016/grsm.pdf

BIOGRAPHY

Manolis Koubarakis is a Professor in the Dept. of Informatics and Telecommunications, National and Kapodistrian University of Athens. He is also an Adjunct Researcher at the Institute of the Management of Information Systems (IMIS) of the "Athena" Research and Innovation Center. He is a Fellow of EurAI (European Association for Artificial Intelligence). He has published more than 170 papers that have been widely cited in the areas of Artificial Intelligence (especially Knowledge Representation), Databases, Semantic Web and Linked Data. His research has been financially supported by the European Commission (projects CHOROCHRONOS, DIET, BRIDGEMAP, Evergrow, OntoGrid, SemsorGrid4Env, TELEIOS, Optique, LEO, MELODIES, WDAqua and BigDataEurope), the Greek General Secretariat for Research and Technology (more recently through the Research Excellence Grant SCARE), the European Space Agency (project Prod-Trees) and industry sources (Microsoft Research and British Telecommunications).

He recently co-chaired the European Data Forum 2014[1], the top European event aiming towards the development of a strong data economy in Europe. He has co-ordinated the well-known projects TELEIOS[2] and LEO[3] which developed tools for linked Earth Observation data and linked geospatial data, and applied them to the development of environmental and commercial applications. Manolis team has also developed the linked data infrastructure of project MELODIES[4] which studied how to exploit linked open data in a variety of environmental applications. Manolis currently participates in the project BigDataEurope[5], a European effort in the area of Big Data with application scenarios in all societal challenges of the Horizon 2020. He also participates in the project WDAqua[6], Answering Questions using Web Data), a Marie Sklodowska-Curie Innovative Training Network. Finally, he also participates in the project Copernicus App Lab[7] which will make Copernicus services data available as linked data to aid the development of applications by mobile developers.

[1] http://2014.data-forum.eu/
[2] http://www.earthobservatory.eu/
[3] http://www.linkedeodata.eu/
[4] http://www.melodiesproject.eu/
[5] http://www.big-data-europe.eu/
[6] http://wdaqua.eu/
[7] http://www.app-lab.eu/

14 SEPTEMBER 2017: PROF LUIS MONIZ PEREIRA

Invited Speaker: Luis Moniz Pereira, Professor at Universidade Nova de Lisboa.

Title: Programming Machine Ethics

Time: 14 September 2017; 11h00

Place: Campus Belval. Maison du Savoir

ABSTRACT

We stand at the crossroads of Artificial Intelligence, Machine Ethics and their impact on society. Recently, I co-authored a monograph titled "Programming Machine Ethics", where we explore inroads into the terra incognita of machine ethics, by employing Logic Programming and Evolutionary Game Theory. In it we consider both the cognitive realm of the individual and the realm of population morality. My lecture will overview the book's ethics background, scientific and philosophical motivation, theoretical and experimental results, and ongoing research. Beyond that, the roles and impacts of machine ethics for society will be discussed, namely in what regards moral philosophy, jurisprudence and regulations; design of moral autonomous agents; teaching and learning of morality; ethically safe software; and applications.

BIOGRAPHY

Luis Moniz Pereira, born in Lisbon in 1947, is a Professor of Computer Science (retired) at Universidade Nova de Lisboa, and founder and director of CENTRIA (1993-2008), the Centre for Artificial Intelligence at the same University. He was elected a Fellow of the European Coordinating Committee for Artificial Intelligence (ECCAI) in 2001, received a doctor honoris causa degree from the TU Dresden in 2006 and has been part of the Board of Trustees and the Scientific Advisory Board of IMDEA, the Madrid Advanced Studies Software Institute, since 2006. He is the founding president of the Portuguese Artificial Intelligence Association (APPIA), and serves on the editorial boards of various scientific journals. His research, which he has presented in hundreds of publications, focuses on knowledge representation and reasoning, logic programming, and the cognitive sciences. Currently, he is affiliated with the NOVA Laboratory for Computer Science and Informatics (NOVALINCS). More detailed information, including his awards, teaching and publications, can be found at http://centria.di.fct.unl.pt/lmp/

7 NOVEMBER 2017: PROF KITTICHAI LAVANGNANANDA

Invited Speaker: Kittichai Lavangananda, Professor for Computer Science, KMUTT Bangkok, Thailand.

Title: Application of Genetic Algorithm in Spatial Economics : Emergence of Cities

Time: 15h00

Place: Campus Belval. Maison du Savoir.

ABSTRACT

The emergent behavior is crucial to the study and planning of cities. Scientists and city planners have proposed different theories on how cities are emerged from trading among individuals and there are several factors which can effect the final outcome. These theories had been transformed into different algorithms on emergence of cities. Changes in location of individuals within a region are usually governed by constrains, which is based on consumers and producers relationship that exist among the population. However, these algorithms are described superficially with high level of abstraction. Not enough attention had been paid on how the effect of different initial setups, and how different evaluation methods in the computation of the algorithm may have on the emergence. Assessing the efficiency of the final emergence from these algorithms is best performed where an ideal or optimal emergence is available for comparison. However, without performing exhaustive search, determination of optimal emergences from an arbitrary setup is almost impossible. From computational and optimization perspectives, there are so many aspects in the simple trading of individuals in this type of Spatial Economics. This talk will focus on just three aspects. Firstly, to illustrate whether different types of initial setups and computations may have an effect on the final emergence. Secondly, to apply Genetic Algorithm in an attempt to determine an optimal emergence from a given setup. Finally, to determine whether global transaction cost at an optimal emergence is likely to subsume individual transaction costs for all individuals too.

BIOGRAPHY

Prof Lavangnanada received his B.Sc. in Computational Science from Hull University, in 1985 and M.Sc. in Computing from Cardiff University in 1987, U.K. He completed his Ph.D. studies in Artificial Intelligence at Mechanical Engineering Centre (MEC) at Cardiff University, U.K. in 1995. He has been a faculty member at the School of Information Technology (SIT), King Mongkuts University of Technology Thonburi (KMUTT), Thailand since 1996. At present, he is an Associate Professor and an Assistant Dean for Special Activities. His administrative experience includes the Associate Dean for Research and International Affairs from 2000 to 2009. He was the Project Leader of the Thailand partner in 2 EU-Asia IT&C projects (APoST - ASI/B7-301/97/0126-15 and EAPSTRA - ASI B7-301/71 548(3152-094) during 2000 to 2004. Prof Lavangnananda is an active research member of the Data and Knowledge Engineering

Laboratory (D-Lab) at SIT. His research interest is in the Computational Intelligence related areas (Data Mining, Evolutionary Computation, Machine Learning, Neural Networks) and their applications. His latest research and development was the Prototype of Signature Verification program for the Department of Special Investigation (DSI), Thailand. He is a Senior Member of IEEE Association and a member of the Editorial Board for Cogent Engineering Journal.

7 NOVEMBER 2017: PROF JOANNA BRYSON

Invited Speaker: Joanne Bryson, Professor of the University of Bath, UK, and Princeton University.

Title: AI Ethics: Artificial Intelligence, Robots, and Society

Time: Tuesday, 7 November 2017, 15h00

Place: Campus Belval. Maison du Savoir, Campus Belval

ABSTRACT

Artificial intelligence (AI) is often described as an existential threat to humanity, but is this threat the extinction of our species or only the challenge to our sense of self worth? Can AI be designed for safety? Is an intelligent system necessarily one worthy of moral consideration? Do intelligent systems necessarily compete for resources? I will review some basic theoretical dynamics of intelligence, cooperation and sociality as revealed both in evolved animal and planned human societies, then use these to discuss the most likely outcomes for adding artificial intelligence into our societies. I will then make regulatory and engineering recommendations for how we present as well as develop AI so that we can incorporate it into our society with minimal disruption and to maximal positive effect.

BIOGRAPHY

Prof Joanna Bryson is a Reader (tenured Associate Professor) at the University of Bath, and an affiliate of Princeton's Center for Information Technology Policy (CITP). She has broad academic interests in the structure and utility of intelligence, both natural and artificial. Venues for her research range from reddit to Science. She is best known for her work in systems AI and AI ethics, both of which she began during her PhD in the 1990s, but she and her colleagues publish broadly, in biology, anthropology, sociology, philosophy, cognitive science, and politics. Current projects include "Public Goods and Artificial Intelligence", with Alin Coman of Princeton Psychology and Mark Riedl of Georgia Tech, funded by Princeton's University Center for Human Values. This project includes both basic research in human sociality and experiments in technological interventions. Other current research include understanding the causality behind the correlation between wealth inequality and political polarization, generating transparency for AI systems, and research on machine prejudice deriving from human semantics. She holds degrees in Psychology from Chicago and Edinburgh, and in Artificial Intelligence from Edinburgh and MIT. At Bath she founded the Intelligent Systems research group (one of four in the Department of Computer Science) and heads their Artificial Models of Natural Intelligence.

7 DECEMBER 2017: PROF JULIA STOYANOVICH

Invited Speaker: Julia Stoyanovich, Assistant Professor of the Drexel University.

Title: Data, Resonsible

Time: Thursday, 7 December 2017, 13h30.

Place: Campus Belval. Maison du Savoir.

ABSTRACT

Data-driven algorithmic decision making promises to improve people's lives, accelerate scientific discovery and innovation, and bring about positive societal change. Yet, if not used responsibly, this same technology can reinforce inequity, limit accountability and infringe on the privacy of individuals: irreproducible results can influence global economic policy; algorithmic changes in search engines can sway elections and incite violence; models based on biased data can legitimize and amplify discrimination in the criminal justice system; algorithmic hiring practices can silently reinforce diversity issues and potentially violate the law; privacy and security violations can erode the trust of users and expose companies to legal and financial consequences.

In this talk I will discuss our recent work on establishing a foundational new role for database technology, in which managing data in accordance with ethical and moral norms, and legal and policy considerations becomes a core system requirement. I will define properties of responsible data management, which include fairness, transparency, and data protection. I will highlight some of our recent technical advances, and will discuss the over-all framework in which these responsibility properties are managed and enforced through all stages of the data lifecycle. The broader goal of our project is to help usher in a new phase of data science, in which the technology considers not only the accuracy of the model but also ensures that the data on which it depends respect the relevant laws, societal norms, and impacts on humans. Additional information about our project is available at DataResponsibly.com

BIOGRAPHY

Julia Stoyanovich is an Assistant Professor of Computer Science at Drexel University in Philadelphia, USA, and an affiliated faculty at the Center for Information Technology Policy (CITP) at Princeton Univeristy. She holds M.S. and Ph.D. degrees in Computer Science from Columbia University. Julia's research focuses on responsible data management and analysis practices: on operationalizing fairness, diversity, transparency, and data protection in all stages of the data acquisition and processing lifecycle. She established the Data, Responsibly consortium, co-organized a Dagstuhl seminar by the same name, and serves on the ACM task force to revise the Code of ethics and professional conduct. Julia's research has been supported by the US National Science Foundation (NSF), the US-Israel Bi-national Science Foundation (BSF), and by Google.

18 DECEMBER 2017: PROF JEAN-YVES BEZIAU

Invited Speaker: Jean-Yves Béziau, Federal University of Rio de Janeiro & Ecole Normale Supérieure, Paris.

Title: Is the Principle of Contradiction a consequence of xx = x ?

Time: Monday, 18 December 2017, 16h00.

Place: Campus Belval. Maison du Nombre, Room 1.040.

ABSTRACT

In his famous book, The Laws of Thought (1854), George Boole presents a surprising result: the proof that the principle of contradiction is a consequence of xx=x (PROPOSITION IV of Chapter III), an equality he calls the fundamental law of thought, a symbolic feature of what is nowadays called a Boolean Algebra. In this talk I will discuss this proposition, examining its various interpretations: in set theory, algebra, first order logic and propositional logic.

BIOGRAPHY

Jean-Yves Béziau works in the field of logic - in particular, paraconsistent logic, the square of opposition and universal logic. He holds a Maîtrise in Philosophy from Pantheon-Sorbonne University, a DEA in Philosophy from Pantheon-Sorbonne University, a PhD in Philosophy from the University of So Paulo, a MSc and a PhD in Logic and Foundations of Computer Science from Denis Diderot University. Prof Béziau is the Editor-in-chief of the journal Logica Universalis and of the South American Journal of Logic - an online, open-access journal - as well as of the Springer book series Studies in Universal Logic. He also co-edits College Publication's Portuguese-language book series Cadernos de Lógica e Filosofia (Source: en.wikipedia.org)

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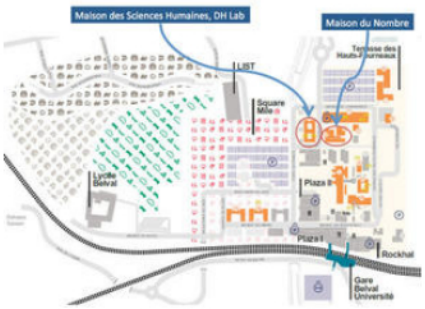

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