SSIR 2018 - Intelligent Robotics (ins)

Date : Jan 16, 2018 - 08:00 AM - Jan 18, 05:00 PM

Event URL : http://www.nyeventslist.com/events/ssir-2018-intelligent-robotics-ins-jan-2017

Organizer : New York Media Technologies LLC in association with INSTICC

Venue :

 Location : Hotel Vila Galé Santa CruzRua São Fernando, 59100-173 Santa CruzPortugal, Portugal, Portugal, US, ZIP: Portugal

Description

Special Session on
Intelligent Robotics - SSIR 2018

16 - 18 January, 2018 - Funchal, Madeira, Portugal
Within the 10th International Conference on Agents and Artificial Intelligence - ICAART 2018

CHAIR

Luis Paulo Reis
University of Minho
Portugal

Brief Bio

Luis Paulo Reis is an Associate Professor at the University of Minho in Portugal and Director of LIACC – Artificial Intelligence and Computer Science Laboratory where he also coordinates the Human-Machine Intelligent Cooperation Research Group. During the last 25 years he has lectured courses at the University on Artificial Intelligence, Intelligent Robotics, Educational/Serious Games, Simulation and Modelling and Computer Programming. He was principal investigator of more than 10 national/international research projects in those areas. He won more than 50 scientific awards including wining more than 15 RoboCup international competitions and best papers at conferences such as ICEIS, Robotica, IEEE ICARSC and ICAART. He supervised 17 PhD and 95 MSc theses to completion. He organized more than 50 scientific events and belonged to the Program Committee of more than 200 scientific events. He is the author of more than 250 publications in international conferences and journals (indexed at SCOPUS or ISI Web of Knowledge).

SCOPE

Robotics, from the point of view of Agents and Artificial Intelligence (AI), has been a very important application field for many years. The dynamic and unforeseen nature of the environment, especially for mobile robots, has fostered research in these aspects for AI researchers. This special session will focus on the contributions of the AI and Agent research community for the field of Intelligent Robotics.

Topics:
• Industrial Robotics
• AI Planning for Robotics
• Autonomous Vehicles
• Cognitive Robotics
• Computer Vision and Object Recognition
• Dynamical Systems
• Evolutionary Robotics
• Humanoid Robotics
• Human-Robot Interaction
• Intelligent Buildings and Warehouses
• Intelligent Transportation Systems
• Learning and Adaptation for Robotic Systems
• Motion and Task Planning
• Multi-Robot Systems and Coordination in Robotics

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- Rehabilitation Robotics
- Robot Architectures
- Robot Behavior Engineering
- Robot Localization and Navigation
- Robot Programming Environments & Languages
- Robotic Surveillance
- Search & Rescue Robots
- Sensor Fusion
- Service Robots
- Simulation of Robotic Systems
- Swarm Intelligence

Important Dates

Conference

Regular Papers
Paper Submission: September 5, 2017 (extended)
Authors Notification: October 16, 2017
Camera Ready and Registration: October 30, 2017

Position Papers
Paper Submission: September 29, 2017
Authors Notification: November 7, 2017
Camera Ready and Registration: November 20, 2017

Workshops
Workshop Proposal: August 31, 2017

Doctoral Consortium
Paper Submission: November 9, 2017
Authors Notification: November 22, 2017
Camera Ready and Registration: December 5, 2017

Special Sessions
Special Session Proposal: August 31, 2017
Paper Submission: November 7, 2017
Authors Notification: November 21, 2017
Camera Ready and Registration: November 29, 2017

Tutorials
Tutorial Proposal: November 24, 2017

Demos

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Demo Proposal: November 24, 2017

Panels
Panel Proposal: November 24, 2017

Open Communications
Paper Submission: November 9, 2017
Authors Notification: November 22, 2017
Camera Ready and Registration: December 5, 2017

European Project Spaces
Paper Submission: November 21, 2017
Authors Notification: November 29, 2017
Camera Ready and Registration: April 10, 2018

Keynote Lectures

Agent-based Models for Language Adaptation and Change
Luc Steels, ICREA, Institute of Evolutionary Biology (UPF-CSIC) Barcelona, Spain

Accountability, Responsibility, Transparency: the ART of AI
Virginia Dignum, Delft University of Technology, Netherlands

Reading Agents that Hunger for Knowledge
Eduard Hovy, Carnegie Mellon University, United States

To be announced soon.
Luís Antunes, Universidade de Lisboa, Portugal

Agent-based Models for Language Adaptation and Change

Luc Steels
ICREA, Institute of Evolutionary Biology (UPF-CSIC) Barcelona
Spain

Brief Bio

Luc Steels is currently an ICREA research fellow at the Institute for Evolutionary Biology (UPF-CSIC) in Barcelona. He studied computer science at MIT (US) and returned to Europe in 1983 as

a professor of Artificial Intelligence (AI) at the University of Brussels (VUB). He founded the VUB AI Lab at the same time. Over the past three decades, this laboratory has been at the forefront of AI research. In the eighties it focused on the domains of knowledge representation and expert systems. In the nineties the focus shifted to the application of complex systems to AI (particularly neural networks and genetic algorithms) as well as behavior-based robotics. In 1996 Steels founded the Sony Computer Science Laboratory in Paris. This laboratory is particularly active in three domains: (i) technologies for addressing issues in sustainability, (ii) AI based music creation, and (iii) constructional language processing. Steels is currently an ICREA fellow in Barcelona where he pursues his interests in modeling language evolution, more concretely, how autonomous robotic agents could develop their own language and ontologies in situated embodied interactions.

Luc Steels gives about a dozen talks per year in various fora, ranging from public talks for a wide audience to workshop and conference contributions. He has also produced a series for educational television, as well as written and edited a dozen books on various topics in AI. Google Scholar lists 300 publications in journals and conferences with a Google Scholar H-index of 66. His work is also regularly featured in the media, such as in broadcasts of the BBC (Horizon) and Discovery Channel (US).

Apart from his scientific activities, Luc Steels explores also the arts. He co-authored a play about the Russian mathematician Sonya Kowalevskaya which premiered at the French Avignon Theatre Festival in 2005 and at the French National Theatre (Chaillot) in 2006. He has also participated in exhibitions at the Musee d'art Moderne in Paris, the Venice Biennale, the Aachener Kunstverein, the Whitney Biennale, and other venues. Together with the neuroscientist Oscar Vilarroya, he created an opera about a humanoid robot Casparo which premiered at IJCAI 2011 in Barcelona, and was then performed in Brussels, Paris, Leuven (Belgium) and Tokyo. His second opera Fausto premiered at the Monnaie Brussels opera house in september 2017.

Abstract

Human natural languages and the conceptual frameworks underlying them are profoundly changing, not just for lexicon or phonology but also for grammar and semantics. Languages thus adapt their expressive power to changing needs of their language communities. They change because of fashions and new communication media (such as texting or twitter). They change also because there is no ideal solution to verbal communication so that a community will continue to navigate in a multi-criterion landscape trying to increase communicative success and decrease cognitive effort for one area while increasing complexity for another.

I will argue that it is worthwhile to try and model language as a complex adaptive systems, both from the viewpoint of linguistic theory, which has so far failed to come up with adequate explanations for this phenomenon, and from the viewpoint of AI because this challenge pushes us to develop new formalisms for grammar, new language processing mechanisms that are more flexible than currently standard parsers and producers, new learning mechanisms that not only focus on parsing but also on producing in interaction.

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The talk will be illustrated with videoclips of our experiments with humanoid robots playing language games.
The agents are initialized with no or very limited forms of language and then develop grammars and lexicons in order to be successful in their language games.

Accountability, Responsibility, Transparency: the ART of AI

Virginia Dignum
Delft University of Technology
Netherlands

Brief Bio

Virginia Dignum is Associate Professor on Social Artificial Intelligence at the Faculty of Technology Policy and Management at TU Delft. Her research focuses on value-sensitive design of intelligent systems and multi-agent organisations, in particular on the ethical and societal impact of AI. She is Executive Director of the Delft Design for Values Institute, secretary of the International Foundation for Autonomous Agents and Multi-agent Systems (IFAAMAS), member of the Executive Committee of the IEEE Initiative on Ethics of Autonomous Systems. She was co-chair of ECAI2016, the European Conference on AI, and vice president of the BNVKI (Benelux AI Association).

Abstract
As robots and other AI systems move from being a tool to being teammates, and are increasingly making decisions that directly affect society,, many questions raise across social, economic, political, technological, legal, ethical and philosophical issues. Can machines make moral decisions? Should artificial systems ever be treated as ethical entities? What are the legal and ethical consequences of human enhancement technologies, or cyber-genetic technologies? What are the consequences of extended government, corporate, and other organisational access to knowledge and predictions concerning citizen behaviour? How can moral, societal and legal values be part of the design process? How and when should governments and the general public intervene?

Answering these and related questions requires a whole new understanding of Ethics with respect to control and autonomy, in the changing socio-technical reality. Means are needed to integrate moral, societal and legal values with technological developments in Artificial Intelligence, both within the design process as well as part of the deliberation algorithms employed by these systems. In this talk I discuss leading Ethics theories and propose alternative ways to model ethical reasoning and discuss their consequences to the design of robots and softbots. Depending on the level of autonomy and social awareness of AI systems, different

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methods for ethical reasoning are needed. Given that ethics are dependent on the sociocultural context and are often only implicit in deliberation processes, methodologies are needed to elicit the values held by designers and stakeholders, and to make these explicit can lead to better understanding and trust on artificial autonomous systems.

The urgency of these issues is acknowledged by researchers and policy makers alike. Methodologies are needed to ensure ethical design of AI systems, including means to ensure accountability, responsibility and transparency (ART) in system design.

Reading Agents that Hunger for Knowledge

Eduard Hovy
Carnegie Mellon University
United States

Brief Bio

Eduard Hovy is a professor at the Language Technology Institute in the School of Computer Science at Carnegie Mellon University. He holds adjunct professorships at universities in the US, China, and Canada, and is co-Director of Research for the DHS Center for Command, Control, and Interoperability Data Analytics, a distributed cooperation of 17 universities. Dr. Hovy completed a Ph.D. in Computer Science (Artificial Intelligence) at Yale University in 1987, and was awarded honorary doctorates from the National Distance Education University (UNED) in Madrid in 2013 and the University of Antwerp in 2015. He is one of the initial 17 Fellows of the Association for Computational Linguistics (ACL) and also a Fellow of the Association for the Advancement of Artificial Intelligence (AAAI). From 1989 to 2012 he directed the Human Language Technology Group at the Information Sciences Institute of the University of Southern California. Dr. Hovy's research addresses several areas in Natural Language Processing, including machine reading of text, question answering, information extraction, automated text summarization, the semi-automated construction of large lexicons and ontologies, and machine translation. His contributions include the co-development of the ROUGE text summarization evaluation method, the BLANC coreference evaluation method, the Omega ontology, the Webclopedia QA Typology, the FEMTI machine translation evaluation classification, the DAP text harvesting method, the OntoNotes corpus, and a model of Structured Distributional Semantics. In November 2016 his Google h-index was 67. Dr. Hovy is the author or co-editor of six books and over 400 technical articles and is a popular invited speaker. In 2001 Dr. Hovy served as President of the ACL, in 2001–03 as President of the International Association of Machine Translation (IAMT), and in 2010–11 as President of the Digital Government Society. Dr. Hovy regularly co-teaches courses and serves on Advisory Boards for institutes and funding

organizations in Germany, Italy, Netherlands, and the USA.

Abstract

True intelligent agenthood (as opposed to mere agency) is characterized by self-driven internal goal creation and prioritization. Few AI systems enjoy the freedom today to autonomously decide what to do next; even robots and planning systems start with a fairly concrete goal and stop acting when they have achieved it. In a small experimental project at CMU we have been exploring what it might mean for a Natural Language text reading engine to experience a 'hunger for knowledge' that drives what it chooses to read and learn about next, in an ongoing manner. There is no overall goal other than trying to increase its understanding (coverage and interpretations) of the world as described in Wikipedia. The starting point is a sketchy representation of the Infoboxes of all the people listed in Wikipedia, and the principal criterion for choosing what to read about next is the desire to minimize knowledge gaps and remove inconsistencies. In contrast to Freebase, Knowledge Graphs, and other text mining projects, internal generalization is central to our work. To implement the system we combine traditional AI frame proposition representation for the basic information (to make it readable by humans) with neural networks such as autoencoders to perform generalization and anomaly detection.

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Luís Antunes
Universidade de Lisboa
Portugal

Brief Bio

Mr. Luis Antunes holds a PhD in Computer Science from University of Lisbon (2001). He has been a researcher in Artificial Intelligence since 1988 and published more than 80 refereed scientific papers. He was the founder and first director of the Group of Studies in Social Simulation (GUESS). Luis Antunes is on the Program Committee of some of the most important international conferences on Artificial Intelligence, Multi-Agent Systems and Social Simulation, such as AAMAS, ECAI, ESSA, WCSS and MABS. He was co-chair of the international workshops MABS'05, MABS'06, MABS'07 on Multi-Agent-Based Simulation, and co-editor of the Springer-Verlag proceedings volumes. He is or was a member of the MABS Steering Committee, of EUMAS Advisory Board, member of ESSA Management Committee and of APPIA (Portuguese Association for AI) board of directors. Antunes hosted EUMAS 2006 and AAMAS 2008, and ECAI 2010 as chair of the organising committee. He was the proponent and a co-chair of the first IJCAI workshop on Social Simulation (SS@IJCAI 2009), and the founder of the first Portuguese Workshop on Social Simulation as a Special Track of EPIA, and the Program Chair of EPIA 2011.

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