CALL FOR PAPERS

Journal of Engineering Design

Special issue on Ontological engineering for supporting semantic reasoning in design

Guest editors

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Aims and Scope

Knowledge formalization and representation (KFR) have received a strong attention in the last decades, especially in the context of knowledge-intensive system engineering, product design and life cycle management, and artificial intelligence-based solutions. The opportunities offered by the related technologies are far for being completely exploited. Actually new technological affordances and new application demands are appearing on a daily basis. This makes KFR a strategic strand of development, which is critical for aligning, interpreting, and overlapping engineering design models, and making them interoperable and facilitating reasoning over their contents. The first efforts addressed the latter issues on a high abstraction level, but the time has come now to address all the above issues in synergy by considering lifecycle aspects and context-based processing.

However, some intellectual challenges and practical limitations have also been realized with regards to industrial implementations. The main barriers are such as: (i) acceptance: the difficulty to reason on semantics and logics for non-logician and non-philosopher, (ii) orthogonality: ontology engineering is seen as cross-design activity demanding time-consuming efforts, and finally (iii) implementation: the interoperability issue between ontology models and computer aided design systems need to be tackled to ensure a successful industrial integration.

The above issues require specific attention from ontological engineering researchers and developers. Therefore, the central theme of this special issue has been formulated as: *Ontological engineering for supporting semantic reasoning in design.* The submitted articles are supposed to address the above challenges and to present tested results. Our objective is to go

beyond traditional modeling and reasoning approaches of knowledge engineering, or conventional approaches of integration of lifecycle information/knowledge into product development processes. We intend to compile a special issue that not only informs about the current state of the art, but also points at new research opportunities for the community.

Topics of interest

We invite authors to submit sufficiently validated research results and fully reported papers on the below listed topics, or on different related topics:

- New approaches to semantic modeling and reasoning
- Engineering of formal ontologies
- Applications of semantic technologies
- Conceptualization and development of ontology-based applications
- Structured data management and elicitation of semantic patterns
- Capturing and modeling design intents and semantics
- Advanced CAD with space-time knowledge
- Model consistency algorithms and formalisms
- Context-dependent reasoning and building awareness
- Mechanisms and algorithms for situated semantic reasoning

The target application domains are such as CPSs, digital manufacturing, Industry 4.0, complex logistics systems, human-in-the loop systems, and other related application domains.

Publication schedule

Notification of Intent to Submit: November 2017 (e-mail to any one of the guest editors)
Full Papers Due for Review: 1st March 2018
Notification of Review Decision: 1st May 2018
Revised Manuscript Submission: 1st July 2018
Final Decision: 1st September 2018
Final Manuscripts due: 1st October 2018
Expected Date of Publication: 26th October 2018 (Vol. 29-11, online)

Submission Instructions

Please prepare your paper following the "Instructions for Authors" available from the Journal of Engineering Design website (http://www.tandf.co.uk/journals/tf/09544828.html).

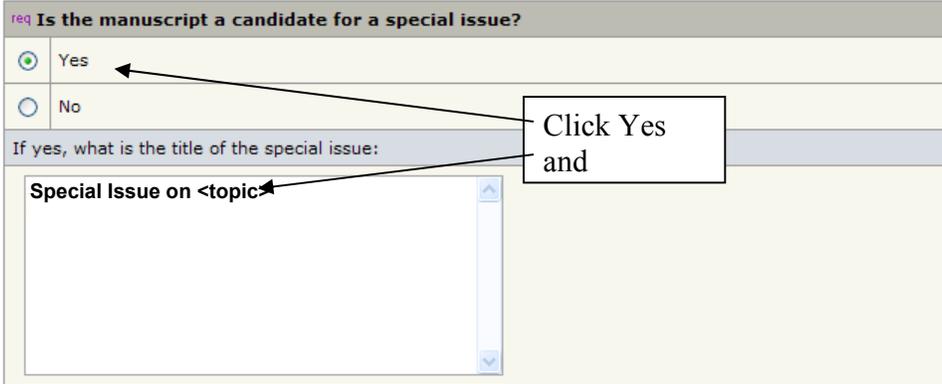Please submit your paper directly to the journal at: http://mc.manuscriptcentral.com/cjen

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NOTE: In Step 1, check "Special Issue Article" for the type of article:

NOTE: In Step 5, check "Yes" for the last question, "Is the manuscript a candidate for a Special Issue?" and enter "Special Issue on <topic>" in the accompanying text box as shown here:

Note: The remaining text will not appear in the Call for Papers. ..

Biographical Information

Dr. Frédéric Demoly is currently Associate Professor at ICB UMR 6303 CNRS from Univ. Bourgogne Franche-Comté UBFC, UTBM (France). Previously, he was involved as a Postdoctoral Researcher at Laboratory of Computer-Aided Design and Production (LICP) from Swiss Federal Institute of Technology (EPFL) in Lausanne (Switzerland) by being team leader in FP7 running projects as well as FP7 project proposals. He obtained his PhD in Integrated design and Product-Process Data Management from UBFC in 2010. He received his Master's degree in Mechanical Engineering from UBFC in 2007. Dr. Demoly is also associate member of the Design Society and senior member in IFIP WGs 5.1 & 5.7. He currently leads a research group with 4 PhDs students and 1 postdoctoral researcher on formalism, methods and tools for proactive design of adaptable and transformable products. His current research interests include proactive design engineering, knowledge formalization and representation, advanced computer-aided design, formal ontology development, qualitative description in product design and manufacturing, orchestration of information flows in PLM, spatiotemporal mereotopology applied to adaptable

and reconfigurable systems, design for X and Context modelling.

Dr. Kyoung-Yun Kim is an associate professor in the Department of Industrial and Systems Engineering at Wayne State University, where he directs the Computational Intelligence and Design Informatics (CInDI) Laboratory. Dr. Kim's research focuses on design science; design informatics; design awareness on manufacturing processes; semantic assembly design; and product life-cycle modeling. Dr. Kim has received external funding from several U.S. federal agencies including NSF, DMDII, NIDRR, VA, DOD, DOE, and industries including Ford and GM. Currently, Dr. Kim is the site director for the NSF Industry and University Cooperative Research Center (I/UCRC) for e-Design. Dr. Kim is an associate editor of Journal of Integrated Design and Process Science. Dr. Kim received top cited article award (2005-2010) from Journal CAD and 2003 IIE Transactions Best Paper Award. Dr. Kim is an invited professor at Université de Technologie de Belfort-Montbéliard (UTBM), France, 2017 and was a visiting professor at Kyung Hee University, South Korea, 2014. Dr. Kim's education includes a Ph.D. in Industrial Engineering from University of Pittsburgh.

Prof. Horváth has two M.Sc. diplomas: (i) in Machine Design from the Institute of Machine Design, Faculty of Mechanical Engineering, Technical University of Budapest, (1973-1978), and (ii) in Technical Lecturing from the Institute of Pedagogics, Faculty of Social Sciences, Technical University of Budapest (1975-1980). He earned dr.univ., Ph.D. and C.D.Sc. titles. His past affiliations and positions are as follows: (i) Product designer at the Section of Crane Design, Hungarian Shipyards and Crane Factory (1978-1981), (ii) Deputy head of section at the Section of Crane Design, Hungarian Shipyards and Crane Factory (1981-1984), (iii) Assistant professor at the Department of Machine Elements, Institute of Machine Design, Faculty of Mechanical Engineering, Technical University of Budapest (1985-1991), (iv) Associate professor at the Department of Machine Elements, Institute of Machine Design, Faculty of Mechanical Engineering, Technical University of Budapest (1991-1997), (v) Full professor at the Section of Computer Aided Design Engineering, Faculty of Industrial Design Engineering, Delft University of Technology (1997-2012). Currently he is a Full professor of Cyber- Physical Systems Innovation, Department of Design Engineering, of the above Faculty. He was Director of Research of Faculty IDE for five years. He was member of the Hungarian Society of Mechanical Engineers (1980-1997). He served in various functions (member, secretary, conference chair, division chair, past chair) in the Executive Committee of the CIE Division of the American Society of Mechanical Engineers. He is now active as fellow of ASME (2011-today). He obtained Doctor Honoris Causae and Professor Honoris Causae titles.

He initiated the International Tools and Methods of Competitive Engineering Symposium 20 years ago, and was the main organizer and chairman of the various TMCE events from 1996 until 2016. He is member and mentor of Nederlandse Certificatiecommissie voor Opleidingen tot Technologisch Ontwerper (CCTO) (2009-today). He was editor in chief of Journal Computer Aided Design (2004- 2014), now emeritus editor, and associate editor of Journal of Engineering Design. He is guest editor of 31 journal special issues, and editor of 15 conference proceedings. He achieved scientific results in design research, development of design enablers, and theoretical underpinning and design of cyber- physical systems. He has written more than 40

journal articles and 120 conference papers as first author, and received 4 best paper awards. The main research interests and topics in the last 5 years: (i) philosophical, methodological, and computational aspects of design research, and formalization and structuring of design knowledge, (ii) theoretical foundations of smart cyber-physical systems, (iii) development of tools and methods as enablers for application-dependent cyber-physical systems, and (iv) development of a mereo-operandi theory and system manifestation feature theory to support transdisciplinary pre-embodiment modelling of CPSs. His main educational interest and topics in the last 5 years: (i) integrating research into design education, (ii) designing cyber-physical systems and applications, and (iii) using design research methodologies. He was promoter of more than 20 PhD students and 40 master graduate students. He was/is responsible for five large scale international projects. He has an extensive network of professional relations throughout the world.