Abstract
The intelligent home is gradually maturing with new technologies such as Spoken Dialog systems for control of essential functions such as your alarm, air-condition, kitchen appliances,… In parallel most of the mobility functions are still carried out by humans. As we see new generations of robots being deployed for efforts such as cleaning, monitoring, basic deliveries it is important to not only have simple maps of the world but also a way to engage with the environment and the robots using semantically relevant information. We will discuss some of the main use-cases for deploying robots in everyday environments and outline how semantic segmentation, object recognition and natural dialog interfaces are used to provide interaction with people both for children’s education and to securing that people can remain in their homes as they grow old. We will cover both methods for learning semantic models entirely data-driven to knowledge based discovery of semantic house/objects models.

Biography
Dr. Henrik I. Christensen is the Qualcomm Chancellor’s Chair of Robot Systems and a Professor of Computer Science at Dept. of Computer Science and Engineering UC San Diego. He is also the director of the Institute for Contextual Robotics. Dr. Christensen does research on systems integration, human-robot interaction, mapping and robot vision. The research is performed within the Cognitive Robotics Laboratory. He has published more than 350 contributions across AI/ML, robotics and vision. His research has a strong emphasis on “real problems with real solutions”. A problem needs a theoretical model, implementation, evaluation, and translation to the real world. Dr. Christensen received the Engelberger Award 2011, the highest honor awarded by the robotics industry. He was also awarded the “Boeing Supplier of the Year 2011”. He is a fellow of American Association for Advancement of Science (AAAS) and Institute of Electrical and Electronic Engineers (IEEE). He received an honorary doctorate in engineering from Aalborg University 2014. His research has been featured in major media such as CNN, NY Times, and BBC.
What are the Semantics of VR

Craig Dietrich, *Mellon Research Fellow, Occidental College, USA*

Adam Sulzdorf-Liszkiewicz, *CTO, RUST LTD. and USC, USA*

**Abstract**

If semantic computing seeks to understand the intentions of users, then VR users are expressing those intentions largely through gestures that can be understood as verbs: grab, swing, point, trigger, and so on. This talk, by two collaborators that work in art and humanities departments, will engage questions around the semantics of VR through a humanities-centered set of examples that predicate human-computer and human-human interaction.

**Biographies**

Craig Dietrich develops systems for creative and scholarly examinations of transnational culture. Armed with early exposure to online environments such as LambdaMOO and a 2008 Intermedia MFA from the University of Iowa, Dietrich works in both traditional and new media. Dietrich’s offline production includes Walking Wall Street, a project that has seen Dietrich document Wall Streets in towns and cities across America; and hosting the Occupy Roundtable series in Los Angeles lecture-halls. His online work has harnessed database-driven interactive media, streaming video, and recently mobile development for Tenants in Action (TIA), an app that facilitates slum-housing reports to LA city agencies. Related collaborations include the Mukurtu Archive and Plateau People’s Web Portal content manager based on Aboriginal cultural protocols, for which he was the first lead developer; Scalar, a scholarly publishing platform based on Semantic Web technology created in partnership with academic presses and archives; and Tensor, an iTunes-like app for managing digital content from cultural archives.

Adam Sulzdorf-Liszkiewicz is the Chief Operations Officer of the award-winning design studio, RUST LTD., creators of the best-selling virtual reality game, Hot Dogs, Horseshoes & Hand Grenades. He has designed and consulted for clients such as Dave and Buster’s, the Independent Television Service, Nokia, Strategic Actions for a Just Economy, and Toyota. He is also the author of a full-length collection of digital poetry and games, AFEELD, which was published by the Collaboratory for Digital Discourse and Culture at Virginia Tech in 2017. Adam currently teaches game studies and game design courses at the University of Southern California, where he serves as Director of the Playwork Lab.
Identifying Malicious Actors in Online Platforms

V.S. Subrahmanian, Professor, University of Maryland

Abstract
Malicious actors are omnipresent in online social and crowdsourced platforms – vandals on Wikipedia, bots on Twitter, and trolls on various platforms all play a major role in degrading the quality of open information and free discussion on the web. This talk will focus on the role of semantics and its relationship with networks in order to classify users on Twitter as bots and users on Wikipedia as vandals. In the context of Twitter bots, this talk will discuss the DARPA Twitter Bot Challenge and subsequent research. In the context of Wikipedia, Professor will also discuss the vandal early warning system (VEWS) and its role in identifying vandals as early as possible. Time permitting, this talk will discuss malicious actors in other online networks such as Slashdot and/or on e-commerce sites such as Flipkart. The talk reflects joint work with many students and colleagues.

Biography
V.S. Subrahmanian is Professor of Computer Science and Director of the Center for Digital International Government who has developed data-driven algorithms and predictive analytics together for a variety of problems relating to counter-terrorism, cyber-security, and industry. He developed some of the first algorithms to capture the semantics of probabilistic logics and multivalued logics, and applied them to the study of the behavior of terrorist groups, yielding numerous forecasts of real world events. In the context of semantic computing, he developed some of the first disk-based query engines to query massive RDF triple stores, some of the first parallel algorithms to process subgraph matching queries, and some of the first probabilistic subgraph matching algorithms. More recently, he has developed algorithms and techniques to predict which actors are malicious and which ones are benign in a host of online platforms including Twitter, Slashdot, Wikipedia, and Flipkart. He led the team that won DARPA’s 2015 Twitter Bot Challenge in the SMISC program. He has written over 300 refereed papers and (co-)authored 6 books. Prof. Subrahmanian serves on the editorial boards of journals such as *Science, ACM Transactions on Intelligent Systems & Technology, ACM Transactions on Computational Logic*, and more. In addition, he is the editor in chief of *IEEE Intelligent Systems*. A fellow of both AAAI and AAAS, he has delivered numerous invited talks and keynote addresses.
Semantic Interoperability in the Internet of Everything Ecosystem

Ram D. Sriram, Chief of Software and Systems Division, National Institute of Standards and Technology

Abstract
A key technical challenge for realizing the “Internet of Everything (IoE)” is that the network consists of things (both devices and humans) which are heterogeneous, yet need to be interoperable. In other words devices and people need to interoperate in a seamless manner. This requires the development of standard terminologies (or ontologies) which capture the meaning and relations of objects and events. Creating and testing such terminologies will aid in effective recognition and reaction in a network-centric situation awareness environment. In this talk, I will provide a unified framework for Internet of Everything, and then discuss the role of ontologies. I will also discuss how category theory, a branch of abstract mathematics, provides a firm conceptual foundation for enabling semantic interoperability.

Biography
Ram D. Sriram is currently the chief of the Software and Systems Division, Information Technology Laboratory, at the National Institute of Standards and Technology. Before joining the Software and Systems Division, Sriram was the leader of the Design and Process group in the Manufacturing Systems Integration Division, Manufacturing Engineering Laboratory, where he conducted research on standards for interoperability of computer-aided design systems. Prior to joining NIST, he was on the engineering faculty (1986-1994) at the Massachusetts Institute of Technology (MIT) and was instrumental in setting up the Intelligent Engineering Systems Laboratory. Sriram has co-authored or authored more than 250 publications, including several books. Sriram was a founding co-editor of the International Journal for AI in Engineering. Sriram received several awards including: an NSF’s Presidential Young Investigator Award (1989); ASME Design Automation Award (2011); ASME CIE Distinguished Service Award (2014), and the Washington Academy of Sciences’ Distinguished Career in Engineering Sciences Award (2015). Sriram is a Fellow of ASME, AAAS, IEEE and Washington Academy of Sciences, a member (life) of ACM, a and a member (life) of AAAI. Sriram has a B.Tech. from IIT, Madras, India, and an M.S. and a Ph.D. from Carnegie Mellon University, Pittsburgh, USA.