

Department of Computer Science
University of Houston

NSF REU SUMMER SERIES

WHEN: FRIDAY, JUNE 15, 2012

WHERE: PGH 232

TIME: 10:30 AM

SPEAKER: Dr. Andruid Kerne, Texas A&M University

Host: Dr. Ioannis Pavlidis

TITLE: HCC for Creativity, Expression, and Participation

ABSTRACT:

The Interface Ecology Lab [<http://ecologylab.net>] develops computing as a medium of expression, coordination, and ideation. The interface-as-ecology is a border zone that juxtaposes disparate representational systems, fostering intricate interrelationships that are more than trans-disciplinary, more than socio-technical. They are structurally essential, i.e., *metadisciplinary*, driving us to investigate and synthesize diverse fields - art, design, cognitive psychology, ethnography, cultural studies, and mathematics – in concert with core computer science and engineering areas: human-computer interaction, graphics, multimedia, programming languages, information retrieval, machine learning, embedded and distributed systems, and electronics. Interface Ecology Lab (IEL) research integrates diverse methods across fields to build human-centered computing (HCC) environments that real people use in education and crisis response.

The IEL fosters integrative research projects spanning hardware, software, and theory, to produce natural user interfaces, creativity support tools, games, interaction techniques, visualization algorithms, semantics, programming languages, interactive installations, and evaluation methodologies. *ZeroTouch* is a high-resolution multi-finger sensor for free-air interaction or to augment LCD, pen-based, and haptic displays with multi-touch. Pen+Touch embodied interaction transforms real time strategy games to become even more exciting for players and for eSports spectators. *Trans-surface* interaction techniques connect personal and social multi-touch surfaces. *Zero-fidelity simulation games*, based on fire emergency response practice, teach team coordination in motivating, fun environments. *Information composition* is a holistic, integrative representation for information collections, in which a set of visual semantic clippings and annotations is arranged to form a connected whole. *Information-based ideation* is an evaluation methodology deriving *ideation metrics* to validate creativity support tools. *Support for Information Mapping in Programming Languages* ([S.IM.PL](#)) constitutes an open-source cross-language type system to support semantic distributed computing, connecting Java, iOS, and .NET. *Meta-metadata* extends the cross-language type system to develop an alternative to RDF for representing a *metadata semantics web*, integrating strongly typed data models, information extraction, operations, and presentation.

BIO:

Andruid Kerne is a researcher working at the intersection of arts and sciences. He is associate professor of Computer Science and Engineering at Texas A&M University, and director of the Interface Ecology Lab. Andruid holds a B.A. in applied mathematics / electronic media from Harvard, an M.A. in music composition from Wesleyan, and a Ph.D. in computer science from NYU.

Andruid Kerne's research has been supported by NSF, Google, and the Rockefeller Foundation. The Guggenheim Museum, ACM CHI, SIGGRAPH, CSCW, JCDL, Multimedia, CIKM, TEI, Creativity and Cognition, ToCHI, ToIS, and Document Engineering, the Ars Electronica Center, the Boston Cyber Arts Festival have presented his output. He serves on program committees including CHI, JCDL, C&C, TEI, ITS, MM, WWW, IUI, SBIM, and DocEng. Press coverage spans Time, MSNBC, Discovery News, Popular Science, PC World, New Scientist, Slashdot, Engadget, Gizmodo, InRumor.com, and Le Monde. He has directed industry projects and developed systems for NASA JPL, AT&T, The Discovery Channel, Proctor and Gamble, Mitsui, and Boeing.