ANFA 2014 CONFERENCE

PRESENTER ABSTRACTS

ACADEMY OF NEUROSCIENCE FOR ARCHITECTURE

The Smart Building and Human Behavior

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This presentation will focus on smart buildings and research related to home automation, wireless networks, sensor technologies and the future of the internet of things for the built environment and how these technologies might be used to learn from human behaviors to inform future building design.

1. EXTENDED ABSTRACT

The Smart Building and Human Behavior: Accurate Information Informs Design

Imagine a world where every point in space has the potential to be a sensor or display. You walk into a room and the room automatically adjusts itself to your preferred temperature. Lights turn on just how you like it, and with the wave of the hand the shades adjust to allow the right amount of lighting for the activity. Without much thought or effort, your environment has adapted itself into a peaceful and tranquil environment for productivity. Next, you walk into the kitchen and the home operating system has notified you of how much energy you have saved from unplugging unnecessary energy consuming devices and from running the dishwasher during non-peak hoursi. You feel good about your contribution to the environment and how your investment in technology has helped you get there.

Today, there are over 12.5 billion devices connected to the web and it is expected there will be 25 billion by the year 2015 and 50 billion by 2020ii. These devices are being embedded in many places, in cars, appliances, cameras, roads, pipelines, medicine and even livestock. Smart systems are transforming our energy grids, supply chains and water management systems. Our world is becoming interconnected. This area of research is being investigated as part of Frank Gehry's / Gehry Technologies SUPRASTUDIO at UCLA's IDEAS campus dedicated to cross-disciplinary research and collaboration among students, faculty and industry partners that questions, challenges and expands the future of architectural and urban design practiceiii.

This presentation will focus on smart buildings and research related to home automation, wireless networks, sensor technologies and the future of the internet of things for the built environment and how these technologies might be used to learn from human behaviors to inform future building design. This presentation will share how this area of research is being investigated within an academic context and how it is being applied in practice. Also, speakers will discuss what potential these technologies may have in learning from a building's inhabitant and how the data collected might be used to inform future building design to go beyond home automation and become active participants in our daily lives.

2. REFERENCES

1. S. S. Intille, K. Larson, E. Munguia Tapia, J. Beaudin, P. Kaushik, J. Nawyn, and R. Rockinson, "Using a live-in laboratory for ubiquitous computing research," in Proceedings of PERVASIVE 2006 , vol. LNCS 3968, K. P. Fishkin, B. Schiele, P. Nixon, and A. Quigley, Eds. Berlin Heidelberg: Springer-Verlag, 2006, pp. 349-365.

2. http://www.cc.gatech.edu/fce/house/papers/position-paper.pdf

3. http://share.cisco.com/internet-of-things.html

4. http://www.aud.ucla.edu/programs/m_arch_ii_degree_1/studios/2013_2014/gehry/?page_id=487 5. Harper, R. (2011). The connected home: The future of domestic life. London: Springer.

3. AUTHOR BIOS

About the Speakers

All three speakers are involved in helping plan the AIACC Now Next Future Conference being held October 2014 in Santa Monica and are active in employing technology to advance design. Representing different architectural practices, they will share their perspectives on how architectural firms are using technology today, what is next on the horizon for technological innovation, and how in the future, design, enabled by technology, can influence development of the built environment on the human experience.

Brian Paul Dougherty, FAIA, LEED BD+C is a Senior Partner at Dougherty + Dougherty Architects LLP, specializing in the planning

and design of contemporary educational, institutional, military, commercial, and health care facilities. Mr. Dougherty contributes over thirty-five years of experience in providing architectural services to projects. He brings a career-long emphasis in energy conservation and sustainable design to each project, including a focus on holistic resource conservation that is shared with clients, community members, and other professionals through lectures and presentations. He serves as a practicing architect member of the California Board of the Collaborative for High Performance Schools (CHPS). His credentials in this area have led to his role as a spokesperson for the architectural profession in State and National dialogue on the subject. His service to the AIA over the years at the Local, State and National levels has included Regional Director to the National Board and National Secretary from 1996 to 1998. Mr. Dougherty served as the 1986 Orange County Chapter President, AIACC Secretary in 1988, a Trustee of the AIACC Benefit Insurance Trust, and a member of the AIA Regional/Urban Design Committee. Mr. Dougherty is currently the 2014 President of the American Institute of Architects, California Council (AIACC).

German Aparicio, Assoc. AIA, LEED AP, German Aparicio is Project Manager at Gehry Technologies and leads a seminar course on physical computing, wireless networks and sensor technologies at UCLA's IDEAS campus. He has academic, research and professional experience as Lecturer at UCLA, Cal Poly Pomona, UC Berkeley and the California College of the Arts, as research associate at SENSEable City Laboratory (MIT), scholar in residence at Autodesk's IDEA Studio and as Computational Designer at ARUP and AECOM design engineering firms. German received a Bachelor of Architecture from Cal Poly Pomona and a Masters of Science in Architectural Studies (Design and Computation) from the Massachusetts Institute of Technology (MIT).

Lucas Reames, Assoc. AIA, has been a project director at Gehry Technologies since October 2007. He has a degree in architecture and computational design from California State Polytechnic University-Pomona. Gehry Technologies is an AEC technology development and consulting company providing leading edge solutions to the industry's most challenging projects. Clients include some of the most recognized international architects, engineers, contractors, and owners working on some of the world's most ambitious projects.