THE ACADEMY OF NEUROSCIENCE FOR ARCHITECTURE ANNUAL CONFERENCE

Expression of Interest to Participate

Title   Cultivating a culture for neuro-architecture:
               Developing strategies and models for education

Theme   neuro-architecture education

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Format   Oral presentation with digital images (slides)

Abstract/Presentation Proposal

        In the burgeoning cross-disciplinary field of neuro-architecture, one of the greatest challenges is how to successfully promote mutualistic research collaboration and knowledge dissemination among two disparate communities. In 2005, ANFA established a program of Research Associates to train a handful of emerging architects in neuroscience, and neuroscientists in architecture, that they might build bridges between the disciplines. Those first Research Associates have taught subsequent individuals, and remain dedicated to continuing to cultivate cross-disciplinary research, knowledge sharing, and application to improve human health and wellness. In this sense,

the Research Associate model for neuro-architecture education was successful, but it is not one that is easily sustainable or reproducible. What is the ideal approach to structure such learning? Establishing these interdisciplinary connections is not straightforward, especially when one considers the potential theoretical and methodological boundaries that must be overcome when establishing connections between the fields of neuroscience and architecture.

In this session, the presenters will outline three pedagogical approaches to integrating these two disciplines meaningfully: approaching neuroscience from an architecture perspective, approaching architecture from a neuroscience perspective, and an interdisciplinary approach in which both disciplines can mutually inform and challenge one another. Results from a 2008 AIA study (Banasiak 2008) on implementing research in design education can provide recommendations for an interdisciplinary approach linking research to application. Existing course models will be discussed in terms of their value, potential opportunities offered, and learning outcomes. The advantages and disadvantages of each pedagogical perspective will be debated and open to audience feedback. This will include sharing strategies and resources for promoting the education of the future neuro-architect, and more generally, to systematically bridge the chasm between research and application.

Biographies

Meredith Banasiak is a member of the College of Architecture and Planning faculty at the University of Colorado. Meredith's research interest lies in examining the connection between the environment, body and brain using the lens of cognitive science in order to inform design applications which support human functionality, both physical and cognitive. As a Research Associate with the Academy of Neuroscience for Architecture (ANFA), Meredith collaborated with neuroscientists and architects to promote cross-disciplinary research, and engaged in neuroscience research at the Krasnow Institute at George Mason University (KIDLAB) investigating spatial effects on cognitive processes across the life cycle using behavioral paradigms and fMRI technology.

Meredith has developed her research interests as a member of the interdisciplinary Lifelong Learning and Design (L3D) Center in research on "Social-technical tools for sensemaking and sketching", a study in human-computer interaction design examining how technological tools can enhance the collaborative design process. In 2008, Meredith received an American Institute of Architects (AIA) 'Research for Practice' (RFP) grant for her project, "From Benchtop to Bedside: Transferring research lessons learned in an undergraduate program" to develop a research partnership between students and practitioners that promotes knowledge transfer between academia and the design profession.

Meredith facilitates an approach to human-centric design and research integration in courses such as 'Neuroscience & Architecture: Linking cognitive science to architectural experience', 'Human Behavior in Design and Planning', 'Design for Learning Studio: Linking Learning Theory, Design Processes + Practices' and 'Redesign for All: Exploring Universal Design in local communities'. Meredith has taught at The Catholic University of America and Arizona State University, and was a

project designer for Carter Burgess in Phoenix, specializing in higher education and healthcare projects.

Margaret R. Tarampi, MS, Assoc. AIA is a psychology PhD graduate student at the University of Utah where she earned a Master of Science in psychology in 2010. Interdisciplinary thinking is a central component to Margaret's theoretical and practical pursuits. She has built upon the proposition that there is a relationship between psychology and architecture, and more broadly the arts in all of her endeavors. This type of interdisciplinary thinking has shaped her personal and academic aspirations. Interdisciplinary thinking is a powerful mechanism for learning and growth. It can address issues resulting from a purely specialized education, such as fragmentation and stifling of creativity, by allowing for novel and innovative approaches. For example, Margaret's research work focuses on understanding the role that physical environments play in human perception and behavior, an area that is not well understood. During her graduate career (advised by Dr. Sarah Creem-Regehr), Margaret has begun a program of research investigating the cognitive mechanisms that underlie spatial perception and cognition in special populations including individuals with vision impairments and spatial experts such as dancers and architects. Her training as an architect informs theoretical questions about the nature of spatial ability in spatial experts. In her art, Margaret explores assumptions and manipulations of the human perceptual system.

A recent cover story of *gradPSYCH Magazine* (a publication of the American Psychological Association) highlighted her work as cutting edge, cross-disciplinary research that combines architecture and cognitive psychology (Novotney, 2010). While at the University of Utah, Margaret has presented 12 conference posters, given 2 seminars, and published in 3 peer-reviewed journals (in print or in press) on her interdisciplinary work as well as have been featured in other publications. For example, Margaret was profiled in the book, *Becoming an Architect (2nd edition)* edited by Lee Waldrep, PhD, as an architect with a diverse and successful alternative career path in architecture.

Previously, Margaret served as a research associate to the Academy of Neuroscience for Architecture, as a research assistant to the American Institute of Architects, and as a research assistant in several neuroscience laboratories at the Salk Institute for Biological Studies in La Jolla CA. Her work focused on exploring the intersection of neuroscience and architecture. Margaret graduated from Carnegie Mellon University (CMU) with a Bachelor of Architecture and minors in Psychology and Architectural History. Margaret also served as the American Institute of Architecture Students (AIAS) CMU Chapter President for two years and as AIAS National Director of the Northeast Quadrant from 2000-2001. Margaret went on to pursue a Master of Architecture at the Washington Alexandria Architecture Center of Virginia Tech. Her thesis was titled "Neuro-architecture: How design, designs us." She was an adjunct assistant professor at the NewSchool of Architecture and Design where she taught an introductory course titled "Neuroscience for Architects I", which was based on her Master's thesis.

Margaret's work has been awarded with several university and national honors including 2012 University Equity and Diversity Award, 2011 B. Jack White Award; 2011 University Teaching Assistantship; 2011 University of Utah Department of Psychology Teaching Commendation; 2011 University of Utah Department of Psychology CNS Area Professional Development Award; 2008, 2010 and 2011 University of Utah Department of Psychology Commendations for Service; 2010 Kevin Hawley Memorial Award; 2004 National AIAS Presidential Citation; CMU Alumni Association 2001 Student Service Award; CMU 2001 Senior Leadership Award; 2000 National AIAS Student Research Honor Award; and 1999 National AIAS Chapter President Honor Award.

Margaret is also an accomplished artist whose art and design work has been displayed in exhibitions in Salt Lake City UT, Park City UT, Pittsburgh PA, Washington DC, Athens GA, Calgary Canada, and La Jolla CA.