NYU-X VIP Team Research Opportunity Description

VIP Faculty:
Winslow Burleson, Associate Professor, NYU College of Nursing (wb50@nyu.edu)
Jeremy Rowe, Senior Research Scientist, NYU College of Nursing (jeremy.rowe@nyu.edu)

NYU Tandon Co-Investigator:
R. Luke DuBois, Associate Professor, Integrated Digital Media (dubois@nyu.edu)

Research site: http://www.nyu-x.org/

Focus:
NYU-X, located in the NYU Rory Meyers College of Nursing, investigates the use of emerging technologies for innovation in health care. NYU-X examines how novel HC (human-computer interaction), virtualization/simulation technology (including virtual reality), and next-generation fabrication solutions can be found for so-called “wicked” problems in clinical care, medical education, and public health. The lab works with a large interdisciplinary team of clinicians, engineers, and research scientists from across NYU. Students will have access to the NYU-X lab and collaborative/federated facilities at NYU and in the New York metropolitan area. Students will also partner with faculty from the Integrated Digital Media Program at NYU Tandon, housed within the Media and Games Network (MAGNET), NYU’s flagship facility for innovation and applied research in culture and technology.

Examples of current VIP student research opportunities at NYU-X:

(1) Intelligent systems incorporating distributed, integrated sensors have the potential to dramatically restructure living environments. Intelligent home environments that integrate sensor with information about context, individual interest and ability can improve daily living and provide customized information, services, and support. Potential impacts range from automation to free individuals from repetitive daily activities and controlling gaming and entertainment systems to identification and authorization of individuals and tailoring interactions and environmental responses and prompts and alerts to empower individuals to safely live and age in place. SMART home technology and sensors provide a foundation for developing services, but there are huge opportunities to improve integration, add intelligence, and address new services. Challenges include understanding and addressing the strengths and limitations of architecture, engineering, public policy, and engineering. Interdisciplinary teams of nurses and healthcare professionals, engineers, instructional designers, artists and gamers and teams will define problems, design and develop real world applications and services to develop and test solutions as well as addressing problems defined by or posed by various project partners, mentors, and sponsors.

(2) Augmented reality systems have a transformative potential in health and wellness. This research aims to extend current augmented-reality applications and experiences by integrating a wide range of delivery platforms and AR technologies to improve integration of audio, visual and computer sources. Addition of contextual information, affect and emotional state, and human computer interaction integrated with research and service needs has the potential to move AR and VR from the laboratory into daily life. Research areas include user interface design, the integration of auditory and visual stimuli, the development of architectural and software abstractions for cross-platform and multi-application augmented reality, and the integration of robotics and physical augmentation.

(3) NYU-X STEM Nursing and Inventioneering Initiatives provide intensive, hands-on project based opportunities for individuals and teams to engage in design thinking and transdisciplinary innovation, with a focus at the intersection of healthcare, technology, education, and innovation. STEM Nursing Project inter- and trans- disciplinary teams will collaborate with content experts to
identify real world challenges, then design and develop, innovative solutions, then iteratively test and refine their efforts to move from theory, to practice, to broader impact. Students will have the opportunity to apply technical skills in creative ways in order to advance the fields of STEM and Nursing by inspiring interest and research incorporating robotics, 3D modeling, augmented reality platform design, and simulations. The goal is to develop a new transdisciplinary network of innovation at the intersection of health, technology, education, engineering, robotics, product design, policy, entrepreneurship, and more.

**Research Approach:** Faculty, staff and students form transdisciplinary collaborations that span from fields of engineering and computer informatics to the cognitive and biological and health sciences. Collaborative teams incorporate experience and expertise in content, ideation and innovation, design, development, evaluation and entrepreneurship involving developing innovative solutions to challenging real world problems.