PERSONAL STATEMENT

Entrepreneur and engineer seeking to build professional relationships in industry and academia in order to move innovative technologies beyond the lab.

EDUCATION

**Vanderbilt University**, Nashville, Tennessee, USA

Master of Science (M.S.) in Computer Science


Adviser: Professor Nilanjan Sarkar


**Middle Tennessee State University**, Murfreesboro, Tennessee, USA

Bachelor of Science (B.S.) in Computer Science

WORK EXPERIENCE

**Robotics & Autonomous Systems Lab**, Vanderbilt University, Nashville, Tennessee, USA

Research Assistant II

Jan 2016 – Present

After completing my graduate degree, I began work in a full-time research and development position. This work included activities covering a wide segment of the scientific process: grant writing, experiment design, obtaining ethics approval, interdisciplinary collaboration, software development, data analysis, and dissemination of findings. I am also engaged in commercialization of a variety of products/systems that I co-created.

**Accomplishments:**

- Extended existing software for application in Schizophrenia intervention
- Designed and implemented a real-time device activity prediction system using supervised learning methods
- Completed a study of mobility-impaired patients using a novel instrumented cane at the Pi Beta Phi Rehabilitation Institute
- Several conference presentations and pending journal articles
- Winner: TechVenture Challenge 2017 - Annual entrepreneurship competition

**Research Assistant**


My work as a graduate research assistant included a range of diverse projects, logging hundreds of hours of human subjects experiments, and has been featured nationally on media outlets such as *NBC News* and *Autism Speaks*.

**Gaze-sensitive VR Driving System**

The primary subject of my graduate research was the development of a gaze-sensitive VR driving environment (called VADIA) aimed at understanding and improving the driving performance of individuals diagnosed with Autism Spectrum Disorder (ASD). This system incorporated closed-loop feedback from an eye tracking device, and over 30 human subjects—many with ASD—participated in studies to validate and assess the system. VADIA has also been successfully used in the work of several other researchers for various applications.

**Instrumented Walking Cane**

This system is designed to predict user activity in real time, collect objective measures of device usage, and to detect gait anomalies that might indicate the presence of degenerative illnesses such as Parkinson’s disease, osteoporosis, or post-stroke imbalance. Patent pending.

**Undergraduate Intern**

Sep 2012 – Jul 2013

I implemented the major components of a VR driving system that would later become my graduate research. This project required me to work closely with other programmers in order to create software modules that could be easily composed into a larger, more complex system. I designed and implemented the core driving module, network communication logic, and other peripheral modules. This system was used to carry out experiments with more than 40 participants and has since appeared in both technology- and autism-related conferences and journals.

SELECTED PUBLICATIONS

Please see my Google Scholar page for a complete list of publications.

Peer-Reviewed Journals


Conference Papers


Poster Presentations


Patents


Open-Source Software

PROFESSIONAL SERVICE

Ad hoc reviewer
Journal of Autism and Developmental Disorders
IEEE Transactions on Affective Computing

Mentoring
Mathematics Tutor to Community Middle School and High School Students
Mentor to Senior Software Engineering Students at Middle Tennessee State University, Sep 2015 – Present

SKILLS

Areas: Machine Learning, Parallel/Distributed Systems, Object Oriented Design, Virtual Reality, Embedded Systems

Data Analytics: scikit-learn, WEKA, MATLAB, Supervised Machine Learning, Clustering, Cross-validation, Inferential Statistics, Effect Sizes

Environments and Development Tools: Windows, Linux, Unity3D, Visual Studio, Canopy, Vim

Languages and Misc: C#, Python, C/C++, Java, JSON/XML, Microcontrollers, Audio Signal Processing