

Siddarth Ponnala

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EDUCATION

Ph.D. Candidate, Industrial and Systems Engineering

Expected May 2020

Major: Human Factors & Ergonomics; **Minor:** Mixed Methods Research

University of Wisconsin, Madison, WI

Advisor: Dr. Nicole Werner

M.S. Industrial and Systems Engineering

May 2017

Human Factors Engineering & Ergonomics

Virginia Polytechnic Institute and State University, Blacksburg, VA

Advisor: Dr. Nathan Lau

B.S. Liberal Arts and Sciences

May 2014

Major: Cognitive Psychology **Minor:** Integrative Biology

University of Illinois, Urbana-Champaign, IL

WORK EXPERIENCE

Human Factors Engineering Intern

May 2019 – August 2019

Mayo Clinic, Rochester, MN

- Studied implications of robot assisted surgery on surgeon workload and performance
- Applied systems engineering to develop ergonomics training modules for surgical staff
- Conducted quantitative and qualitative data analysis for manuscripts publications

Human Factors Engineer

June 2018 – June 2019

Children's Hospital of Wisconsin, Milwaukee, WI

- Designed systems engineering initiatives for handoffs in pediatric intensive care unit
- Employed user experience practices for integration of Epic EMR
- Lead various performance, quality, and safety improvement projects
- Conducted data analysis for manuscript publications in Human Factors in Patient Safety

User Experience Intern

June 2017 – August 2017

Northrop Grumman, Baltimore, MD

- Conducted user research for government applications
- Developed usability testing protocols to glean user preferences
- Designed and iterated website architecture with Axure RP
- Worked in progressive sprints using agile production cycles

Lead User Experience Researcher and Designer

August 2016 – May 2017

Newman Library, Virginia Tech, Blacksburg, VA

- Conducted work-domain analysis for academic social networking
- Developed user survey questionnaires to glean user preferences
- Designed and iterated website architecture with UX Pin
- Drafted proposal for user experience in product development

Research and Development Specialist

June 2015 – December 2015

Unilever Food Solutions, Lisle, IL

- Coordinated and delegated Food Solutions inquiries for North America (U.S. and Canada)
- Specification management for Dressings and Spreads U.S.
- Global level ingredient implementation in SAP PLM
- RFPs for purchase orders
- Data transition from Interspec to SAP modules.

Information and Programs Manager

August 2010- May 2014

University of Illinois, Champaign, IL

- Hired and trained 20-30 employees every semester in customer service and technology troubleshooting
- Managed student staff on a daily basis in order to ensure they fulfill their duties
- Enforced policies internally and externally in order to thoroughly serve customer service needs
- Gave tours and marketed housing options for prospective students.

RESEARCH EXPERIENCE

Graduate Research Assistant

September 2017 – Present

Werner Lab, University of Wisconsin, Madison, WI

Lab Director: **Dr. Nicole Werner**

- Investigating the work processes and networks of informal caregivers of persons with Dementia. Responsible for literature reviews, proposal development, data collection protocols and data analysis. Focused on mixed methods including semi structured interviews, thematic and content analyses.

Graduate Research Assistant

June 2016 – May 2017

Virginia Cognitive Systems Engineering Lab (VACSE), Virginia Tech, Blacksburg, VA

Lab Director: **Dr. Nathan Lau**

- Collaborated with Carilion Research Institute (VTCRI) and Georgetown University to develop a medical training program for laparoscopic surgery. Employed signal detection theory, confidence questionnaires, and remote eye tracking to study situational awareness of surgeons. Responsibilities included conducting literature review, designing experimental protocols, collecting and analyzing data.

Research Specialist

June 2016 – September 2016

Center for Infrastructure-Based Safety Systems (CIBSS), VTTI, Blacksburg, VA

Center Director: **Dr. Ron Gibbons**

- Responsibilities included setting up physical presentations for participants on the Smart Road, running lighting-related protocols on the Smart Road, and assisting in pre-analysis data processing and reduction.

Lab Manager

April 2014 – July 2015

The Lifelong Brain and Cognition Lab, Beckman Institute, Urbana, IL

Lab Director: **Dr. Arthur Kramer**

Projects

- **MODERN** Evaluated neural correlates and cognitive/motor benefits of professional dancing training in comparison to age- and education-matched controls with no dancing experience. Screened, recruited, and ran subjects. Was also responsible for data organization and assisting the primary investigator Dr. Agnieszka Burzynska with data analysis. (Spring 2015)
- **Fit Kids (FK)** Investigated the influence of fitness, cognition, and scholastic effects in preadolescent children. Responsibilities with this study generally were analyzing data using SPSS. Made corrections of brain scans prior to analysis with FSL View. (Fall 2014)
- **Fitness, Learning, Exercise in Extreme Kids (FLEX)** – Investigated the influence of aerobic fitness on the neural underpinnings of learning in preadolescent children. Had a role in developing the IRB documents and protocol for the study, as well as recruiting participants, and running the study under the advisory of Dr. Laura Chaddock-Heyman and Anya Knecht. (2014-2015)
- **Fit and Active Seniors Trial (FAST)** - Investigated the neurocognitive effects of a 6-month fitness intervention on adults aged 55-80. Assisted in the analysis of structural MRIs by deciphering white matter from gray matter in MPRAGE scans. Also assisted in doing reference work for different publications under the guidance of Dr. Agnieszka Burzynska. (Summer 2014)

Research Assistant

2013-2014

UIUC Developmental Social Neuroscience Lab, Champaign, IL

Lab Director: **Dr. Eva Telzer**

Project

- **Family Dyads** Took a predominant role in coordinating pre-scan and post-scan procedures for a study that investigated brain activity during different tasks using functional magnetic resonance imaging

(fMRI) that assessed stress levels and risk-decision making under the supervision of Dr. Eva Telzer and lab manager Nick Ichein. (Fall 2013 - Spring 2014)

Lab Manager/ Research Assistant

2012- 2013

UIUC Conversational Lab, Champaign, IL

Lab Director: **Dr. Sarah Brown Schmidt**

Project

- **Perspective taking and Language processing** - Coordinated data collection and ran experiments as a confederate. Worked with participants as a confederate on a task that investigated perspective taking and language processing among young adults. Coded audio files and analyzed word onsets of speech using Praat (audio editing program) for a study involving young adults that investigated common ground in conversation.

TEACHING EXPERIENCE

Graduate Teaching Assistant

January 2019 – May 2019

Human Factors Engineering in Health Care

University of Wisconsin, Madison, WI

- Developed course content and prepared lectures
- Mentored and evaluated 15 students
- Advised on course projects and facilitated discussions

REFEREED PUBLICATIONS

Ponnala S., Block L., Lingg A.J., Kind, A.J., Werner N.E. (Under Review). Conceptualizing Caregiving Activities for Persons with Dementia (PwD) through a Patient Work Lens. *Applied Ergonomics*

Ponnala S., Rivera, A.J., Ramly E., Catchpole K., Yin S.Q. (2019). Human Factors and Ergonomics in Health Care Systems: Identifying Roles and Strategies for Success. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting 2019*

Rutkowski R., **Ponnala S.**, Gonzalez – Vargas J., Gilmore-Bykovskyi A., Block L., Kind, A.J., Werner N.E. (2019). Conceptualizing Caregiver Workload: An exploratory study applying NASA TLX. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting 2019*

Park J., **Ponnala S.**, Fichtel E., Tehranchi K., Fitzgibbons S., Hendrickson-Parker S., Lau N., Safford S. (2019). Improving the intra-operative educational experience: Understanding the role of confidence in the resident-attending relationship. *Journal of Surgical Education*

Ponnala S., Rivera A.J. (2019) Human Factors Engineering: Intervention, Status, Future Directions in Pediatrics. *Current Treatment Options in Pediatrics*

Ponnala S., Weiler D.T., Gilmore-Bykovskyi A., Block L., Kind, A.J., Werner N.E. (2018). Towards an Understanding of Informal Care Networks of Persons with Dementia: Perceptions of Primary Caregivers. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting 2018*

Fichtel E., Lau N., Hendrickson-Parker S., Park J., **Ponnala S.**, Fitzgibbons S., Safford S. (2018). Eye tracking in surgical education: Gaze-based dynamic area of interest can discriminate adverse events and expertise. *Surgical Endoscopy*

BOOK CHAPTERS

Ponnala S., Valdez RS., McGuire K., Valdez J. (Under Review). The Nature of Systems in Healthcare. *Book Chapter*

Ozkaynak M., **Ponnala S.**, Werner N.E. (2019) Patient-Oriented Workflow Approach. *Cognitive Informatics*

CONFERENCE PRESENTATIONS

Harman-Kenzler J., Lau N., Fichtel E., Park J., **Ponnala S.**, Hendrickson-Parker S., Fitzgibbons S., Safford S. (2020) Surgical Judgment of Attending Surgeons is More Stable Than Residents Across Surgical Situations. *Abstract to be presented at Academic Surgical Congress, February 4-6th, 2020. Orlando, FL, USA*

Ponnala S., Rutkowski R., Block L., Gilmore-Bykovskiy A., Kind, A.J., Werner N.E. (2019). Caregiving for Persons with Dementia: An exploratory study on patient work and demands. *Poster presented at Grainger Institute of Engineering Symposium*, October 10th, 2019. Madison, Wisconsin, USA.

Rutkowski R., **Ponnala S.**, Gilmore-Bykovskiy A., Block L., Kind, A.J., Werner N.E. (2019). Application of NASA TLX to Assess Caregiving Workload. *Poster presented at University of Wisconsin Advisory Board Research Symposium*, April 11th, 2019. Madison, Wisconsin, USA.

Ponnala S., Gilmore-Bykovskiy A., Block L., Kind, A.J., Werner N.E. (2018). Role Ambiguity and Role Conflict Among Family Caregivers of Dementia Patients. *Paper presented at International Ergonomics Association 20th Congress*, August 26th-31st, 2018. Florence, Italy.

Ponnala S., Gilmore-Bykovskiy A., Block L., Kind, A.J., Werner N.E. (2018). Towards an Understanding of Task-Based Role Delineation in Informal Care of Alzheimer's Disease (AD) Patients. *Poster presented at Alzheimer's Association International Conference*, July 22nd-26th, 2018. Chicago, Illinois, USA.

Ponnala S., Gilmore-Bykovskiy A., Block L., Kind, A.J., Werner N.E. (2018). Towards an Understanding of Task-based Role Delineation in Informal Care of Persons with Dementia. *Poster presented at Wisconsin Institute of Health Systems Engineering Conference*, May 2nd, 2018. Madison, Wisconsin, USA.

Park, J., **Ponnala, S.**, Henrickson-Parker, S., Fitzgibbons, S., Lau, N., & Safford, S. (2017). Utilizing Eye-Tracking Technology to Understand the Importance of Confidence on Education. *Poster presented at the Conference for Higher Education Pedagogy*, February 15th, 2017. The Inn at Virginia Tech & Skeleton Conference Center, Blacksburg, VA, USA.

Lau, N., Shertz, E., Barnett, C., Robic, J., Wakeman, C., **Ponnala, S.**, & Brown, S. (2016). electronic Diabetes Artificial Pancreas Training (eDAPT) - Development and User Study. *Poster presented at the Diabetes Technology Meeting*, November 11th, 2016. Bethesda North Marriott Hotel, Bethesda, MD, USA.

Steinberg, J., Chaddock-Heyman, L., Raine, L., Nikolaidis, A., **Ponnala, S.**, Hillman C., & Kramer, A. (2015). Cardiovascular Fitness and Creativity in Children. *Poster presented at Undergraduate Research Symposium*, May 6th, 2015. University of Illinois, Urbana, IL, USA.

LEADERSHIP & RECOGNITION

Why You (YU?) Initiative

- Mentor for underprivileged adolescents who aspire to go to pursue undergraduate and graduate degrees

Avanade Healthcare App Jam

- Awarded second place in competition for incorporating virtual reality into ambulatory medicine applications with the Microsoft HoloLens

Human factors Ergonomics Society (HFES)

- Reviewer for Healthcare Technical Group
- "Most Creative" design winner in *Wedding Wire* Guerilla Usability Challenge, HFES 2016

Youth for Understanding (YFU)

- Local Coordinator for the Department of State. Serve as a Liaison between organization, host family, and visiting student to ensure the policies are enforced and goals are met to provide excellence in study abroad experiences for foreigners.

3-Day Startup (3DS)

- Organized the first 3DS event at University of Illinois; Mentored 15 students on the development of startup ideas, and successfully built prototypes for 6 different ideas in less than 72 hours.

Alpha Phi Omega (APO)

- Mentored 35 pledges through the initiating process as a Pledge Advisor and completed over 200 hours of Service on the National, State, and regional level

Psi Chi National Society

- Inducted into the international honor society for excellence in the science of Psychology.

AWARDS & GRANTS

Student Travel Grant, September 2019

Wisconsin Scholarship Hub, University of Wisconsin - Madison

Funding Amount: \$600

HCTG Student Travel Grant, September 2018

Health Care Technical Group, Human Factors and Ergonomics Society

Funding Amount: \$700

Graduate Student Research Travel Award, April 2018

Holtz Center for Science and Technology Studies, University of Wisconsin

Funding Amount: \$500

Chancellor's Opportunity Award, September 2017

Department of Industrial and Systems Engineering, University of Wisconsin

Funding Amount: \$2000

Avanade Healthcare App Jam – Second Place, April 2017

Pamplin College of Business, Virginia Tech

Funding Amount: \$1500