

Thomas M. Schnieders
Curriculum Vitae

Date: 16 January 2019

Name: Thomas M. Schnieders

Department: Industrial and Manufacturing Systems Engineering

Current Rank: Doctor of Philosophy Candidate

I. PERSONAL HISTORY AND PROFESSIONAL EXPERIENCE

A. Educational Background

Ph.D. Industrial Engineering, concentrating in Ergonomics and Human Factors Engineering, Minor in Statistics, Iowa State University, (Expected May 2019)

M.S. Human Computer Interaction & Industrial Engineering, concentrating in Ergonomics and Human Factors Engineering, Iowa State University, 2016

B.S. Mechanical Engineering, Iowa State University, 2014

A.A. Pre-Engineering, Bard College at Simon's Rock, 2011

B. Academic Positions

NSF-EAGER 172736 Graduate Research Assistant, Iowa State University, F2017 - present

Senior Design Graduate Teaching Assistant, Iowa State University, Spring 2017

Human Factors Graduate Teaching Assistant, Iowa State University, Fall 2016

Adjunct Instructor, Engineering, Des Moines Area Community College, Summer 2016

C. Professional Appointments

Co-Founder, Vice President, & Webmaster, SAES (Society of Augmented Engineers and Scientists), July 2018 – Present.

Graduate Mentor, Research Experience for Undergraduates, SPIRE-EIT (Summer Program for Interdisciplinary Research and Education – Emerging Interface Technologies), NSF 1757900, Iowa State University, May 2018 – August 2018

Co-Founder, Lab Coordinator, & Webmaster, The ATHENA Lab (Augmentation and Training of Humans with Engineering in North America), Iowa State University, August 2015 – Present

Instructional Design Graduate Teaching Assistant, Engineering-LAS Online Learning, Iowa State University, September 2015 – July 2017

Intern, Woodward Resource Center, Adaptive Technology Center, Woodward, Iowa,
May 2014 – August 2015

Undergraduate Research Assistant, The Virtual Reality Applications Center, Iowa State
University, May 2012 – January 2014

D. Honors, Recognitions, and Outstanding Achievements

- Invited to Institute of Industrial and Systems Engineering Doctoral Colloquium, May 2018
- Member of the Alpha PI Mu Industrial Engineering Honor Society, Spring 2018 – present
- Recipient of the Graduate and Professional Student Senate Professional Advancement Grant, Fall 2017
- Recipient of the Human Factors and Ergonomics Society Student Author Presentation Support Award, Fall 2017
- Preparing Future Faculty Scholar, Spring 2017
- Research Excellence Award, Industrial and Manufacturing Systems Engineering, Iowa State University, Spring 2017
- Nominated for Forbes 30 Under 30, 2017
- Certified Associate Ergonomics Professional by Board of Certification in Professional Ergonomics, September 2016
- The ATHENA Lab recognized as the first Augmented Human Lab in the United States, November 2015
- Co-Founded The ATHENA Lab with Dr. Richard T. Stone, November 2015
- Accepted into Bard College at Simon's Rock at the age of 16
- New York State School Music Association 28/28 Piano level IV 2009
- Student Ambassador, People to People, China 2009
- 4th place in National Junior Sailing Regatta 2008

E. Grant Writing Experience

E1. Investigators: Gul E. Okudan-Kremer, Richard T. Stone

Title of Grant: EAGER: MAKER: Industrial Experience and Disciplinary
Knowledge Impact on Creative Outcomes in a Making Context
NSF-EAGER 173736

Granting Agency: National Science Foundation

Dates of beginning and end of grant: 8/15/17 – 8/15/19

Total dollar amount of grant: \$300,000

Role or responsibilities of the candidate: grant development and execution

II. PUBLICATIONS AND CREATIVE WORKS

A. Master of Science Thesis Title

ARCTiC LawE: An Upper Body Exoskeleton for Law Enforcement Training

B. Textbook chapters (in print)

- B1: **Schnieders, T. M.** & Stone, R. T., (2019). A Current Review of Human Factors and Ergonomic Intervention with Exoskeletons. In D. Zhang & B. Wei (Eds.), *Novel Design and Applications of Robotics Technologies* (pp. 217-246). Hershey, PA: IGI Global. Doi:10.4018/978-1-5225-5276-5.ch008

C. Articles in Journals (published)

- C1: **Schnieders, T.M.**, Stone, R.T., Oviatt, T., & Danford-Klein, E., (2017). “ARCTiC LawE – An Upper Body Exoskeleton for Firearm Training”. *Augmented Human Research*, Vol. 2. DOI: 10.1007/s41133-017-0004-4
- C2: **Schnieders, T.M.** & Stone, R.T., (2017). “Current Work in the Human-Machine Interface for Ergonomic Intervention with Exoskeletons”. *International Journal of Robotics Applications and Technologies*, Vol. 5(1), pp. 1-21.

D. Conference papers (published)

- D1: Richard T. Stone, **Thomas M. Schnieders**, Chen-Shuang Wei, & Tyler Oviatt, “The Impact of Inspector’s Cognitive Style on Performance in Various Visual Inspection Display Tasks”. *Proceedings of the Human Factors and Ergonomics Society Annual meeting*. Washington, DC. September 19-23, 2016., vol 60, pp. 1384-1388. DOI: 1177/1541931213601319
- D2: Richard T. Stone, **Thomas M. Schnieders**, & Peihan Zhong, “Human-Robot Collaborated Exploration and Wayfinding: Orientation Awareness and Its Enhancement”. *Proceedings of the Human Factors and Ergonomics Society Annual meeting*. Austin, TX., October 9-13, 2017, Vol, 61, pp. 1257-1261. DOI: 10.1177/1541931213601795
- D3: **Schnieders, T.M.**, Stone, R.T., Oviatt., & Danford-Klein, E., “The Effect of Locking out Radial and Ulnar Deviation with an Upper Body Exoskeleton on Handgun Training”. *Proceedings of the Human Factors and Ergonomics Society Annual meeting*. Austin, TX, October 9-13, 2017., Vol. 61, pp. 1488-1491. DOI: 10.1177/1541931213601857
- D4: **Schnieders, T.M.**, Stone, R.T., Danford-Klein, E., & Oviatt, T., “The Effect of Locking out Wrist Flexion and Extension with an Upper Body Exoskeleton on Handgun Training”, *Proceedings of the Human Factors and Ergonomics Society Annual meeting*. Austin, TX, October 9-13, 2017, Vol. 61, pp. 1499-1503. DOI: 10.1177/1541931213601860
- D5: Velineni, A., Gunay, E. E., Park, K., **Schnieders, T. M.**, Stone, R. T., & Okudan-Kremer, G. E., “An Investigation on Selected Factors that Cause Variability in Additive Manufacturing”, *Proceedings of the 2018 IISE Annual Conference, Orlando, Florida*.
- D6: Wang, Z., Stone, R. T., Mumani, A., & **Schnieders, T. M.**, “How Packaging Characteristics Change the Perception of Product Net Weight”, *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*.
- D7: **Schnieders, T. M.** & Stone, R. T., “Ranking Importance of Exoskeleton Design Aspects”, *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*.

- D8: Stone, R. T., Janusz, O., & **Schnieders, T. M.**, “Ergonomic Analysis of Modern Day Kitchen Knives”, *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*.
- D9: Stone, R. T., Moeller, B., **Schnieders, T. M.**, & Mumani, A., “Vastus and Patellar Protection with Range of motion Pad – Advanced Personal Protective Equipment for the Lower Body”, *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*.
- D10: Stone, R. T., Fales, C., Jose, D., **Schnieders, T. M.**, Krejci, C., Wang, Z., Schweiger, D., & Hernandez, C., “The Impact of Scientific Management Principles on Food Hub”, *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*.

E. Articles in Journals (accepted)

- E1: **Schnieders, T. M.**, Wang, Z., Stone, R. T., Backous, G., Danford-Klein, E., Push, K., “The Effect of Human-Robot Interaction on Trust, Situational Awareness, and Performance in Drone Clearing Operations”, *International Journal of Human Factors and Ergonomics*, **accepted**.
- E2: Wang, Z., Stone, R. T., Danford-Klein, E., Momani, A., **Schnieders, T. M.**, & Fales, C. W., “Tool Selection, Ergonomics, and Economics: A Comparison Study Between Information Acquired from Traditional and Broader Ergonomics Hand Tool Evaluation”, *Theoretical Issues in Ergonomics Science*, **accepted**.

F. Conference papers (accepted)

- F1: Stone, R. T., Okudan-Kremer, G., & **Schnieders, T. M.**, “A Course Based Approach for Creativity in Engineering Design”, *American Society for Engineering Education*, **accepted**.

G. Articles in Journals (under review or submitted)

- G1: Stone, R. T., **Schnieders, T. M.**, & Zhong, P., “Exploring the effect of visual information degradation on human perception and performance in a human-telerobot system”, *International Journal of Industrial Ergonomics*, **under review**.
- G2: Stone, R. T., **Schnieders, T. M.**, & Zhong, P., “Perception Effects in Ground Robotic Tele-Operation”, *International Journal of Robotics Applications and Technologies*, **submitted**.

H. Articles in Journals (in progress)

- H1: Stone, R. T., Rajana, K. L., **Schnieders, T. M.**, Fales, C. W., Danford-Klein, E., Xu, C., Abdelall, E., & Hallbeck, S., “A Human Factors Investigation of the Simple Mattress Suturing Technique”, **in progress**.
- H2: Stone, R.T. & **Schnieders, T. M.**, “An Extrapolation of the Torrance Unusual Uses Task”, **in progress**.
- H3: Stone, R.T., **Schnieders, T. M.**, & Okudan-Kremer, G., “Assessment of Torrance Test of Creativity in a Graduate Level Engineering Design Course”, **in progress**.
- H4: Stone, R. T., **Schnieders, T. M.**, & Hampel, M., “Psychophysical Analysis of Personal Protective Equipment in Contact Sports Using the Hampel Tackling Criterion”, **in progress**.

- H5: Jose, D., Stone, R. T., Hernandez, C., & **Schnieders, T. M.**, “Scientific Management Principles Applied and Validated in Food Hub Improvement”, **in progress**.
- H6: **Schnieders, T. M.** & Stone, R. T., “QuANTUM Ex – The First Exoskeleton Design and Evaluation Method”, **in progress**.
- H7: Stone, R. T., Dorneich, M., **Schnieders, T. M.**, Singh, A., Hampel, M., Purdy, T., & Fales, C. W., “Analysis of Force and Efficiency of Punches and Kicks in Martial Arts”, **in progress**.
- H8: Mumani, A., Stone, R. T., & **Schnieders, T. M.**, “An Affordance-Based MCDM Approach for Packaging Evaluation”, **in progress**.
- H9: Stone, R. T., **Schnieders, T. M.**, Backous, G., Wang, Z., Terry, S., Truong, M., Seshie, I., & Push, K., “Impact of Drone Swarm Interfaces in Law Enforcement Clearing Operations”, **in progress**.
- H10: **Schnieders, T. M.**, Mumani, A. A., & Stone, R. T., “A Comparison of Analytic Network Process and Weighted Rank Order in an Exoskeleton Design”, **in progress**.

I. Conference papers (in progress)

- I1: **Schnieders, T. M.**, Janusz, O., Sajikumar, K., & Kittleson, N., “Peanut butter jar redesign from a human factors standpoint”, **in progress**.
- I2: **Schnieders, T. M.** & Stone, R. T., “Engineering Design Considerations in the Development of an Upper Body Exoskeleton Design Method”, **in progress**.
- I3: Stone, R. T., Grossman, D., & **Schnieders, T. M.**, “The effect of a raised lip trigger well on handgun, shotgun, and assault rifle draw time and safety”, **in progress**.

III. INSTRUCTION AND SUPERVISION

A. Instruction for Des Moines Area Community College

Course	Title	Credits
EGR 180	Statics of Engineering	3

Course Number	Term	Credit hours	# Students Enrolled	Hrs/Week of TA/Grader Support	Name(s) of co-instructor(s)	Overall Teaching Effectiveness (on 5-point scale)
EGR 180	Summer 2016	3	9	0	X	4.8

B. Teaching Assistant for Iowa State University

Course	Title	Credits
I E 577	Human Factors	3
I E 441	Industrial Engineering Design	3

Course Number	Term	Credit hours	# Students Enrolled	Overall Teaching Effectiveness (on 5-point scale)
I E 577	Fall 2016	3	82	4.7
I E 441	Spring 2017	3	84	Not provided by institution

C. Research Assistant for Iowa State University

Course	Title	Credits
I E 578X	Human Centered Design and Manufacturing	3

Course Number	Term	Credit Hours	# Students Enrolled	Overall Teaching Effectiveness (on 5-point scale)
I E 578X	Spring 2018	3	16	4.7
I E 578X	Spring 2019	3	TBD	TBD

IV. Service

A. Professional Societies and Organizations

- A1: Participating Member, ASTM F48 Committee on Exoskeletons and Exosuits, ASTM F48.02 Subcommittee on Human Factors and Ergonomics, ASTM F48.91 Subcommittee on Terminology, May 2018 – Present.
- A2: Member, Human Factors and Ergonomics Society, 2017 – Present.
- A3: Member, Institute of Industrial & Systems Engineers, 2016 – Present.
- A4: Member, Order of the Engineer, 2013 – Present.
- A5: Member, American Society of Mechanical Engineers, 2011 – Present.

B. Community Service

- B1: PAWS (Partnering in Animal Welfare Service) Volunteer Coordinator, The ATHENA Lab, Ames, Iowa, Fall 2016; Spring 2018.
- B2: Youth Marketplace Panelist, Gilbert Middle School, Gilbert, Iowa, Spring 2016.
- B3: University Representative, Origami University | ISU Origami Club, Ames, Iowa May 2012 – May 2014.
- B4: Volunteer Pianist and Patient Services, Good Samaritan Hospital, Kearney, Nebraska, June 2011 – August 2011.
- B5: Recycling Program Developer, Christ Lutheran Church of Airmont, Airmont, New York, August 2008 – December 2008.

C. Supervision of Graduate Creative Components

C1: Varun Ananthasivan Srikri, Master of Engineering Student, Spring 2018 – present.

D. Supervision of Undergraduate Research Assistants

D1: Erik Danford-Klein, Undergraduate Researcher, Fall 2016 – present.

D2: Kate Socha, Undergraduate Researcher, Fall 2018 – present.

D3: Tracy Purdy, Undergraduate Research, Fall 2017 – Spring 2018.

D4: Anthony Dote, Undergraduate Researcher, Spring 2016 – Fall 2017.

D5: Scott Kleymann, Undergraduate Researcher, Spring 2016.

D6: Tyler Oviatt, Undergraduate Researcher, Fall 2015 – Fall 2016.

E. Supervision of Research Experience for Undergraduates

E1: Stephan Terry, REU, NSF SPIRE-EIT, Summer 2018.

E2: Inshira Seshie, REU, NSF SPIRE-EIT, Summer 2018.

E3: Mary Truong, REU, NSF SPIRE-EIT, Summer 2018.

F. Supervision of Undergraduate Research Volunteers

F1: Jeremy Cermin, Undergraduate Volunteer, Fall 2018 - present.

F2: Bradley Lacoume, Undergraduate Volunteer, Spring 2018 – present.

F3: Ben Johnson, Undergraduate Volunteer, Spring 2018 – present.

F4: Cong Xu, Undergraduate Volunteer, Spring 2018 – present.

F5: Brianna Cortez, Undergraduate Volunteer, Spring 2018 – present.

F6: Surya Cidambi, Undergraduate Volunteer, Spring 2018 – present.

F7: Kevin Push, Undergraduate Volunteer, Fall 2017 – present.

F8: Alex Coffman, Undergraduate Volunteer, Spring 2017 – present.

F9: Derek Janusz, Undergraduate Volunteer, Spring 2017.

F10: Mallory Flynn, Undergraduate Volunteer, Spring 2016 – Fall 2017.

F11: Calli Stewart, Undergraduate Volunteer, Summer 2016.

F12: Brock Woessner, Undergraduate Volunteer, Summer 2016, Spring 2018.

F13: Lucas Manwiller, Undergraduate Volunteer, Summer 2016.

G. Supervision of Honors Program Students

G1: Joseph Kim, Honors Program Mentee, Fall 2018 – Present.