
ANDREW MICHAEL SOLTISZ

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EDUCATION:

PhD Student, Biomedical Engineering Aug. 2017 - Present

The Ohio State University, Columbus, Ohio

Graduate Research Assistant with Dr. Rengasayee Veeraraghavan

Cumulative GPA: 3.43

BS, Biomedical Engineering May 2017

The University of Akron, Akron, Ohio

Tissue Engineering and Biomaterials Track

Minor in Computer Science

Cumulative GPA: 3.66, Major GPA: 3.78

Capstone Project: Designed and built patient simulator for palpable circulatory disease diagnosis training

AWARDS AND HONORS:

University Fellowship, *The Ohio State University* 2017

- Selected by department Graduate Studies Committee (GSC)

Golden Key International Honor Society invitation, *The University of Akron* 2016 – 2017

- Top 15% of graduating class (3200 students) based on cumulative GPA

Tau Beta Pi Engineering Honor Society invitation, *The University of Akron* 2016 – 2017

- Top 20% of graduating class based on cumulative GPA

President's List, *The University of Akron* 2014 – 2015

- Semester GPA of 4.0 in at least 12 credit hours of courses

Dean's List, *The University of Akron* 2013 – 2017

- Semester GPA of at least 3.25/4.0

Presidential Scholarship, *The University of Akron* 2012 – 2017

- ACT score >21 and >3.0 semester GPA, \$3000.00/year

PUBLICATIONS:

Ham, T. R., Farrag, M., **Soltisz**, A. M., Lakes, E. H., Allen, K. D., & Leipzig, N. D. (2019). *Automated gait analysis detects improvements after intracellular σ -peptide administration in a rat hemisection model of spinal cord injury*. *Annals of Biomedical Engineering*, doi:10.1007/s10439-019-02198-0.

Ham, S. L., Nasrollahi, S., Shah, K. N., **Soltisz**, A. M., Paruchuri, S., Yun, Y. H., Luker, G. D., Bishayee, A., Tavana, H. (2015). *Phytochemicals potently inhibit migration of metastatic breast cancer cells*. *Integrative Biology*, 7(7), 792-800. doi:10.1039/c5ib00121h.

PRESENTATIONS:

Podium: A Soltisz, S Weinberg, R Veeraraghavan. “*Binucleate Cell Atlasing: An Intracellular Object Localization Tool for Single-Cell Fluorescence Microscopy*”. Microscopy & Microanalysis Annual Conference. San Diego, California. February 2020.

Poster: A **Soltisz**, M Ruzga, M Reilly, K Swindle-Reilly. “*Spatial Variations in Optic Nerve Mechanical Properties*”. The Association for Research in Vision and Ophthalmology Annual Conference. Vancouver, British Columbia. April 2019.

Poster: A **Soltisz**, M Ruzga, S Thobe, M Reilly, K Swindle-Reilly. “*Evaluation of Semi-Interpenetrating Network for Treating Traumatic Optic Neuropathy*”. Society for Biomaterials Annual Conference. Seattle, Washington. April 2019.

Poster: A Soltisz, J Pengfei, K Swindle-Reilly. “Development of Therapeutic Hydrogels for Traumatic Optic Neuropathy”. Society for Biomaterials Annual Conference. Atlanta, Georgia. April 2018.

Poster: C Langenderfer, A Soltisz, H Tavana. “Physiologic Airway Models to Explore Surfactant Delivery to Infants”. BMES Midwest Regional Conference. Akron, Ohio. November 2015.

RESEARCH AND WORK EXPERIENCE:

Graduate Research Assistant, Dr. Rengasayee Veeraraghavan Group Sept. 2019 – Present
The Ohio State University, Department of Biomedical Engineering

- Project 1: Developing image analysis tools for fluorescent microscopy data to quantitatively localize biomolecule signals
- Project 2: Evaluating the structure-function relationship between the spatial distribution of key electrogenic proteins in cardiomyocytes and diabetic cardiomyopathy in a mouse model of type 2 diabetes mellitus
- Experience with image analysis and algorithm design in MATLAB, super resolution fluorescent microscopy, direct Stochastic Optical Reconstruction Microscopy (dSTORM), immunofluorescence staining, TEM imaging of cardiac tissue

Graduate Research Assistant, Dr. Katelyn Swindle-Reilly Group Sept. 2017 – Sept. 2019
The Ohio State University, Department of Biomedical Engineering

- Project 1: Developing an injectable, hydrogel-based drug delivery therapy for treatment of traumatic optic neuropathy; validation through finite element modeling (FEM) and in-vivo study
- Project 2: Characterizing the mechanical properties of optic nerve tissues to inform ocular FEM
- Experience with oscillatory plate rheology of hydrogels and ocular tissues; FEM using COMSOL Multiphysics software; SEM imaging of organic materials

Research Assistant, Dr. Nic Leipzig Group May 2016 – May 2017
The University of Akron, Department of Chemical and Biomolecular Engineering

- Project 1: Investigated the effect of locally injected drugs on reducing the development and expansion of spinal cord syrinxes in a rat model of Chiari Malformation
- Project 2: Investigated the cellular differentiation effects of subcutaneous environments on neural stem cells (NSC) incorporated into a hydrogel bridge for spinal cord regeneration in a rat model
- Experience with rat and mice surgery, post-operative care, dissection. and tissue harvesting; real-time and conventional qPCR; DNA fragment gel electrophoresis; Immunohistochemistry (IHC); cell viability assays; paraffin embedding and sectioning; NSC harvesting and culturing; polymer crosslinking and protein immobilization reactions

Engineering Intern, Concept Development Team Sept. 2015 – Jan. 2016
Invacare Corporation, Elyria, Ohio

- Developed a proof-of-concept prototype for an autonomously stabilizing system for powered wheelchairs using an Arduino-based microcontroller platform
- Managed a database to track the testing and validation of more than 1200 wheelchair components

Research Assistant, Dr. Hossein Tavana Group May 2014 – Sept. 2015
The University of Akron, Department of Biomedical Engineering

- Project 1: Characterized the effects of gravitational, surface, and viscous forces on the distribution of surfactant in human airways using physiologically relevant, 3D printed bronchi models
 - Presented results to clinicians in an effort to improve neonatal surfactant replacement therapies
- Project 2: Investigated the inhibitory effects of phytochemicals on the migration and proliferation of metastatic breast cancer cells
 - Work published in Integrative Biology
- Experience with image analysis software for cell characterization, determining cellular protein expression following IHC, and tracking fluid motion; culturing triple negative breast cancer (TNBC) cells

EXTRACURRICULAR:

Biomedical Engineering Graduate Student Association

The Ohio State University, Columbus, Ohio

A student organization dedicated to providing Biomedical Engineering graduate students with social and professional development opportunities.

- **President** April 2019 – Sept. 2020
 - Organized and executed internal restructuring to accommodate significantly more participants than previous years which generated highly focused initiatives in student wellness, professional development, outreach, communications, and social events.
- **Internal Vice President** May 2018 – April 2019
 - Maintaining effective communication between Department faculty and students
 - Serving as student liaison for the department Graduate Studies Council
 - Planning an outreach program to teach HS students about Biomedical Engineering and its breadth of application to foster an interest in studying the subject following their graduation
- **Community Development Officer** Jan. 2018 – April 2018
 - Organized events to increase student-faculty social interaction and unity

Biomedical Engineering Design Team

The University of Akron, Akron, Ohio

A student organization that designs and implements impactful solutions to real-world medical problems through community and professional engagement.

- **Organization President** Jan. 2017 – May 2017
 - Facilitated partnerships with an engineering firm, a local community development board, and physical therapists to provide students with symbiotic projects and mentorship
- **Organization Vice President** June 2016 – Dec. 2016
 - Developed a protocol to guide project leaders through the design process and how to effectively and respectfully work with the organization's partners
 - Supervised 6 different projects to ensure timely, safe, and effective deliverables
- **Project Leader** Jan. 2016 – July 2017
 - Lead a team of four students in designing and building a tandem wheelchair for a family with two disabled children
- **Organization Treasurer** Sept. 2015 – May 2016
 - Managed a \$25,000 budget and documented financial transactions for 10 coincident projects
 - Developed protocols to track purchases and guide students through the material acquisition process

NASA Robotic Mining Competition Team

Mar. 2015 – Sept. 2016

The University of Akron, Akron, Ohio

A student organization that designs and builds autonomous excavation robots that can traverse simulated Martian terrain for a national, university level competition hosted by NASA

- Developed path tracking software for robots using computer mouse hardware in C/C++
- Team placed 3rd in 2015 competition based on total soil mass excavated

VOLUNTEER WORK:

- BMEGSA Outreach, *Columbus, Ohio* Sept 2019 – Present
- Leading hands-on demonstrations of medical devices for middle and high school students
- Proyecto RAICES, *Akron, Ohio* Mar. 2015 – Sept. 2016
- Taught Hispanic children about engineering through robotics based demonstrations and hands on activities and participated in social events to reduce cultural barriers
- BEST Medicine Science Fair, *Akron, Ohio* 2015 – 2017
- Mentored and assisted middle school students with projects and preparing presentations
- Replay for Kids, *Akron, Ohio* 2015 – 2017
- Repaired and modified toys for children with special needs

TECHNICAL SKILLS:

Programming and Simulation

- Proficient with MATLAB, ANSYS APDL, C/C++ language, ImageJ, SolidWorks, and Arduino microcontroller platforms

Laboratory Techniques

- Experience with rotational rheology of hydrogels and ocular tissues, real-time and conventional qPCR, DNA fragment gel electrophoresis, TNBC and NSC culture, paraffin embedding and sectioning, IHC, light, fluorescence, and scanning electron microscopy, cell viability assays, polymer reactions, and rat and mice surgery, post-operative care, dissection, and tissue harvesting