ALYSSA G. OBERMAN

aly.oberman@gmail.com | (520) 834 – 4717 | www.linkedin.com/in/alyssagoberman

Education

PhD, Bioengineering — February 2022
University of Notre Dame, Notre Dame, Indiana

MS, Biomedical Engineering — May 2016
Arizona State University, Tempe, Arizona

BSE, Biomedical Engineering — May 2015
Arizona State University, Tempe, Arizona

Professional Experience

Postdoctoral Fellow – Ravosa Laboratory — January 2023 - Present
Center for Functional Anatomy and Evolution, Johns Hopkins University School of Medicine — *Baltimore, MD*

- Organized and supervised the moving of the lab from Notre Dame, IN to Baltimore, MD.
- Current acting lab manager and technician, maintaining old lab equipment, ordering materials and new equipment for the space.
- Developing safety protocols and standards of practice in the lab.
- Analyzing cranial shape data to determine the impacts of feeding, both frequency of feedings and cyclic loading due to complex diets, on basicranial shape. Preparing data for publication.

Postdoctoral Researcher – Ravosa Laboratory — January 2022 – December 2022
Department of Biological Sciences, University of Notre Dame — *Notre Dame, IN*

- Evaluated osteogenic potential of cells from different locations across the skull via various cell culture techniques to explore changes in DNA content, cellular proliferation, calcium deposition, and gene expression.
- Optimized protocols for cell isolation and expansion of primary osteoblasts from murine tissue; optimized a protocol to get high quality RNA for RNA sequencing.
- Isolated calvaria to explore tissue relaxation of the dura mater to inform computational models being developed by a collaborating lab.
- Established training documentation for lab members to ensure a safe and functional lab space.
- Trained 1 graduate student and 3 undergraduate students on cell culture and sterile technique and necessary assays for data collection.
- Managed 12 undergraduate researchers; coordinated schedules and compiled weekly tasks for each student.
- Processed lab orders and maintained laboratory equipment.

Graduate Research Assistant – Tissue Mechanics Laboratory — August 2016 – December 2021
Aerospace and Mechanical Engineering Dept., University of Notre Dame — *Notre Dame, IN*

- Characterized bone ingrowth into porous implant materials using in vitro bioreactor for high throughput testing and optimization of orthopedic implant design, in collaboration with DePuy Synthes.
- Optimized a stirred-tank bioreactor to culture porcine and human mesenchymal stem cells using solid and hollow microcarriers; reported outcomes in bi-weekly technical documentation to the Advanced Regenerative Manufacturing Institute.
- Developed and modified protocols to best suit the needs of our laboratory space; trained 3 graduate students, 1 lab technician, and 9 undergraduate students on lab protocols and practices.
- Acted as lab manager for a tissue processing lab and materials processing lab in which I maintained several critical pieces of lab equipment and ensured appropriate training for graduate students, undergraduate students, and postdoctoral students from various labs.
- Wrote and presented technical reports to industry partners to provide timely updates regarding project status.

Engineering Consultant — May 2016 – August 2016
Hofstadter Analytical Services — *Tucson, AZ*

- Experimentally explored failure mechanisms of optical and aerospace devices to provide guidance for optimization of future designs.
- Performed regular inspections and quality tests of client devices.

- Represented the company in client meetings to discuss new jobs and current status of projects, both in person and through technical reports.

Research Assistant July 2015 – May 2016
BioRec, Biomechanics Research & Consulting, LLC *Tempe, AZ*

- Evaluated data from low-velocity lateral motor vehicle accidents using national databases to better understand the risk potential of lateral impacts, informing future accident reconstruction work. Presented findings at research symposium with members of the School of Biological and Health Systems Engineering at Arizona State University.
- Researched and analyzed motor vehicle accidents to develop incident reconstructions summaries.
- Provided insight into probability of injury based on tolerance of the human body to applied forces.
- Wrote and reviewed case summaries to be used in legal depositions for insurance claims cases.

Teaching Experience

Graduate Teaching Assistant August 2016 – December 2019
Aerospace and Mechanical Engineering Dept., University of Notre Dame *Notre Dame, IN*

- Critiqued and graded student reports while providing prompt individualized feedback to help the students learn how to properly write technical reports and memos.
- Instructed students on the proper usage of lab tools such as a metal lathe and drill as well as electronic testing equipment and circuit components.
- Ran review sessions for exams and provided student support via office hours.

Graduate Teaching Assistant August 2015 – May 2016
Ira A. Fulton Schools of Engineering, Arizona State University *Tempe, AZ*

- Enabled freshmen engineering students to explore and learn basic engineering concepts such as mechanics and electronics while allowing them to build and design equipment and explore the interconnection of engineering disciplines through hands-on activities in a weekly laboratory period.
- Guided students through experiments to support their learning in the field of engineering while providing them with individualized attention to problem solve lab challenges and accomplish course objectives.
- Taught and supervised lessons while ensuring student safety and adherence to risk management guidelines.

Undergraduate Teaching Assistant August 2014 – May 2015
School of Biological and Health Systems Engineering, Arizona State University *Tempe, AZ*

- Aided students with course work to help them gain a strong foundation of fundamental skills necessary for the design and development of medical devices.
- Adapted material taught in class to help students better understand the practical and real-world applications of the course work.
- Led review sessions and outside office hours to provide additional guidance and clarity regarding transport phenomena.

Publications

Curtis, K.J., Mai, C., Martin, H., **Oberman, A.G.,** et al. (2021). The Effect of Marrow Secretome and Culture Environment on the Rate of Metastatic Breast Cancer Cell Migration in Two and Three Dimensions. Molecular Biology of the Cell.

Curtis, K.J., **Oberman, A.G**., & Niebur, G.L. (2019). Effects of mechanobiological signaling in bone marrow on skeletal health. Annals of the New York Academy of Sciences.

Posters and Presentations

Oberman, A.G., English, B., Tong, W., & Niebur, G.L., *An In Vitro Model of Bone Formation In A Porous Titanium Scaffold*, SB3C 2021: Summer Biomechanics, Bioengineering and Biotransport Conference, June 17, 2021. *Poster*

Oberman, A.G., English, B., Tong, W., & Niebur, G.L., *An In Vitro Model of Bone Formation In A Porous Titanium Scaffold*, SB3C 2020: Summer Biomechanics, Bioengineering and Biotransport Conference, June 17, 2020. *Oral Presentation*

Oberman, A.G., Patel, A.A., & Niebur, G.L., *Inhibition of GSK-3β by LiCl Does Not Affect MSC Differentiation In Vitro*

or Bone Formation In Situ, SB3C 2019: Summer Biomechanics, Bioengineering and Biotransport Conference, June 28, 2019. *Oral Presentation*
Oberman, A.G. & Niebur, G.L., *The effects of LiCl treatment and mechanical loading on bone formation in situ,* College of Science and Engineering Joint Annual Meeting, December 7, 2018. *Oral Presentation*

Community Engagement

Dog Infirmary and Intake Volunteer, Pet Refuge, South Bend, IN | June 2017 – May 2021

- Cared for new and sick dogs at the animal shelter by feeding them, giving them medication, coordinating with animal care staff on issues with behavior and health, cleaning kennels, and providing enrichment activities.

Planning Committee Member, Expanding Your Horizons, Notre Dame Chapter | August 2016 – May 2020

- Participated as Event Logistics and Parent Program Coordinator (2016 – 2018) and President (2019 – 2020).
- Planned and coordinated a day-long STEM conference for 300 middle school girls and 100+ volunteers.
- Ensured materials for the day were prepared and organized; called parents and finalized paperwork; planned programming for parents, including workshops, campus tours, and information sessions.
- Organized and planned meetings for committee; delegated tasks regarding event planning and acted as the contact for volunteers and parents.

Graduate Student Union – Social and Community Engagement Co-Chair | August 2018 – May 2019

Head Coach, Girls on the Run Michiana | Spring Session 2017 – 2019

- Taught 3-5th grade female students about empowerment and important life skills through physical activities and running.
- Developed a safe and supportive space for the girls to explore their relationships with themselves and their peers to build confidence and develop a positive self-image.

STEMentorship Mentor, AWIS Chapter Notre Dame | October 2016 – May 2017 & October 2018 – May 2019

- Mentored female STEM students over the course of the year to help them achieve their goals and provide them with guidance on how to manage professional aspects of their career; helped one student get involved in on-campus research during the school year.

Honors and Awards

Clinical and Translational and Translational Research Course for Ph.D. Students at NIH | July 2018

- **One of thirty** participants in a course offered to PhD and students across the nation.

eSeed Challenge Accelerator | November 2015

- **One of twelve** teams granted seed funding of $6,000 for pursuing venture startup.

Distinguished Graduate | May 2015

- **One of eleven** distinguished graduates from the Schools of Engineering, selected based on my community engagement and active leadership within the Schools of Engineering.

Prescott Fellow | April 2015

- **One of twelve** individuals chosen to represent their startup ventures and travel to San Jose, CA to learn about the startup industry and meet with active STEM and biomedical device start-ups and Tom Prescott, former CEO of Align Technologies.