JUSTIN KEISTER

KeisterJustinD@sau.edu
(815)-541-6222

Current Address:
1210 NW 11th Ave, Apt. 13
Gainesville, FL 32601

EDUCATION

University of Florida, Gainesville, FL — GPA 4.00/4.00
PhD in Mechanical Engineering — Expected Dec 2021
Master of Science in Mechanical Engineering — May 2018

St. Ambrose University, Davenport, IA — GPA: 4.00/4.00
Bachelor of Science in Mechanical Engineering — May 2016

ACADEMIC AWARDS/HONORS

NSF Graduate Research Fellowship — Summer 2017 - present
Graduate Student Fellowship – University of Florida — Fall 2016 – present
Ambrose Scholar (full-tuition) – St. Ambrose University — Fall 2012 – Spring 2016

WORK EXPERIENCE

Graduate Research Assistant — Fall 2017 – present
Department of Mechanical & Aerospace Engineering, University of Florida

- Analyze composite plate mechanics of piezoelectric MEMS dynamic pressure sensor
- Design a new method of device calibration for piezoelectric pressure sensors
- Study microfabrication and design techniques necessary to produce MEMS dynamic pressure sensor capable of operating at 1 MHz

Graduate Research Assistant — Summer 2016 – Fall 2017
Department of Mechanical & Aerospace Engineering, University of Florida

- Oversaw design, build, calibration, and implementation of real-time cell-stretching system
- Supervised development of soft-matter tensile testing system
- Maintained dermal fibroblast cell cultures, selected/designed appropriate assays relating to mechanobiology
- Designed & fabricated molds for silicone-based molding & soft-lithography
- Analyzed experimental & simulation data using MATLAB, Excel, ImageJ, Abaqus
- Collaborated with engineers & biologists to brainstorm new experiments & data analysis methods
- Managed two undergraduate students on projects relating to dynamic cell and nucleus stretching experiments
- Maintained detailed record of engineering & biological procedures for future students

Engineering Intern — Fall 2015
Davenport Public Works, Davenport, IA

- Prepared clear, concise reports and presentations for city engineers
- Researched, analyzed data, and performed calculations for stormwater management project
- Created a plan for a quality control/quality assurance program to reduce the number of engineering change orders

Research & Design Intern Summer 2015
MADE Program, Minneapolis VA Health Care System

- Developed medical devices to improve the quality of life and treatment for veterans
- Utilized Solidworks, physics, programming and creative thinking to realize prototypes
- Collaborated with doctors, engineers, and machinists to improve device designs
- Independent projects included: development of a rubber bumper material testing device for prosthetic ankle components, design of a prosthetic ankle with mechanically tunable range of motion, investigate use of eye tracking glasses in assisted communication

PROJECTS

Development of a MEMS Ultrasonic Transducer for Gesture Recognition Spring 2018
University of Florida, Design of MEMS Transducers course project

- Lead a team of 4 students on the design, fabrication, and packaging of a piezoelectric micromachined ultrasonic transducer
- Optimized device design through use of lumped element modelling, acoustic modelling, and Matlab optimization tools
- Assisted group members with development of fabrication process flow, packaging, and experimental test plans
- Prepared a detailed design report and delivered presentation to students and faculty

Design and Modelling of a MEMS Piezoelectric Microphone Fall 2017
University of Florida, Principles of MEMS course project

- Reviewed literature on piezoelectric microphone design and performance modelling
- Studied process flow for device fabrication
- Implemented lumped element model to estimate device sensitivity

Patient-specific Instrumentation for Osteochondral Allografting Fall 2017 - present
University of Florida, Multiple Department effort

- Worked in a team of 10 students to identify open-source software to generate 3D models of bone from patient CT scans and create patient-specific cutting guides for surgeons
- Designed patient-specific, 3D printable cutting guide in Solidworks for patient femoral head resurfacing for experimental investigation by veterinarians at University of Florida
- Currently using Mimics/Materialize software suite to refine cutting guide designs while working in team of 6 students
- Contributed to the design & modelling of 2 patient-specific cutting guides successfully used for canine femoral correction at University of Florida veterinary hospital.

Study Abroad Design Project
Ilheus & Itabuna, Bahia, Brazil Summer 2015

- Collaborated with a team of students from multiple universities on the design of a transportable, adjustable training kitchen for delivery to a Brazilian rehabilitation clinic
- Developed team leadership and long-distance communication skills
- Studied the society, technology, and politics of Brazil in a 2-week immersive course, including basics of Brazilian culture and Portuguese language while living with host
- Prototyped and delivered kitchen to clinic in underprivileged area of Itabuna, identified areas for future improvement