

EDUCATION

University of California, Santa Barbara
B.S. Mechanical Engineering, GPA: 3.84/4.00

Santa Barbara, CA
2019–2023

EXPERIENCE

Intel

Chandler, AZ

Research and Development Intern, Mechanical Core Competency

June 2022 - Present

- Lead advanced development into new metrology techniques utilizing acoustic emission for nondestructive testing of complex silicon architectures
- Created digital signal processing (DSP) pipeline using Sci-kit learn and integrated machine learning algorithms for waveform clustering
- Informed and updated an urgent task force group on how to implement the DSP pipeline I developed to a real production scenario

California NanoSystems Institute

Santa Barbara, CA

Senior Workshop Wizard

Dec 2019 - Present

- Managed and advised a team of 4 undergraduate staff including orientation and training
- Responsible for design, correspondence, and manufacturing of over 175 separate precision laboratory parts based on researcher needs
- Responsible for training of over 120 undergraduate and graduate students on over 15 tools and procedures
- Led a team focused on the construction of cyclic olfin copolymer devices for X-ray transparent microfluidic research
- Responsible for writing and documenting SOPs and training procedures for more than 12 tools within labs

UCSB

Santa Barbara, CA

Undergraduate Research Assistant, Daly Group

Sep 2021 - Present

- Engineered modular experiential setup capable of quickly generating large amounts of high quality data used to benchmark machine learning frameworks
- Performed data analysis of acoustic emissions to assess viability of specific machine learning frameworks
- Created and integrated machine learning pipeline for clustering of acoustic emissions emitted from SiC/SiC ceramic matrix composites
- Worked with a team creating experimental procedures and instrumentation for the *in-situ* collection of acoustic emission during cycling of lithium battery cells

SKILLS

- **Design of Precision Equipment:** Designed test fixtures, microfluidic molds and coaxial swirl injectors
- **Machining/Manufacturing:** Proficient with CNC, manual machine tools, reading/producing engineering drawings, lead TA for engineering machine shop 2020
- **Experimental Design:** Conceived and carried numerous innovative tests for detection of crack propagation in brittle materials

SOFTWARE COMPETENCIES

- **Languages:** Python, G-code, LabVIEW, Matlab
- **Solidworks:** CAD, CAM, Simulation, Flow Simulation
 - CSWA certified
- **Autodesk Suite:** Fusion 360 (CAD/CAM), Inventor, AutoCad, HSM Works
- **Ansys:** Fluent Flow Simulation

PUBLICATIONS/PRESENTATIONS

1. C. Muir, N. Tushibagwale, **A. Furst**, B. Swaminathan, A. S. Almansour, K. Sevenser, M. Prasby, J. D. Kiser, T. M. Pollock, S. Daly, C. and C. Smith, “Quantitative benchmarking of acoustic emission machine learning frameworks for damage mechanism identification”, *Integrating Materials and Manufacturing Innovation, (In rev.)*
2. “Bulk Filling Separation”, Mechanical Engineering Design Fair (Poster Presentation), UCSB, 2022
 - Presented final project as well as design iterations and technical documentation for unique product designed to assist in the separation of bulk filling from nozzle
3. “AE for Silicon Crack Detection” Intel Technical Presentation, Chandler, AZ, 2022
 - Technical presentation to Intel Mechanical Core Competency team on the applicability of acoustic emission testing for the detecting initial crack propagation within complex silicon architecture

PROJECTS

See full list of projects on furstandrewj.com/portfolio

- **Rocket Propulsion Lab (Injector Team, 2020 - 2021)**
 - Responsible for design, optimization, and running multiphase flow simulations on over a more than 12 machinable injector designs and geometries
- **ASME Mecanum Wheel (Hardware Lead, 2019 - 2020)**
 - Lead and organized team of 7 members and in the design and manufacturing of a mecanum wheel and chassis

AWARDS

Best in Show

UCSB Mechanical Engineering Design Fair

2022

- Ranked best overall project out of 40 undergraduate mechanical engineering teams

USAT

United States Archery Team

2017-2019

- Ranked top 5 nationally in over 7 international tournaments 2 years in a row