

# ARIELLE PFEIL

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## EDUCATION

### University of Illinois at Urbana-Champaign

Bachelor of Science in Mechanical Engineering

Awards: Illinois Engineering Achievement Scholarship, Wittenstein Kevin Sanchez STEM Scholarship

Graduation: **May 2022**

GPA: 3.50/4.00

## WORK EXPERIENCE

### Apple

Home Product Design Co-Op

Cupertino, CA

January - August 2021

- Developed and owned the detailed mechanical design for a debugging system integrated into an upcoming product
- Collaborated with vendors to iterate on several injection molded, stamped, machined, and electronic (cable/flex) components
- Designed and fabricated several system-level prototypes to validate thermal and acoustic simulations

### Applied Biomaterials and Biomechanics Lab, UIUC

National Science Foundation Research Experiences for Undergraduates

Illinois Scholars in Undergraduate Research Scholar

Urbana, IL

June - August 2020

August 2019 - May 2021

- Improved manufacturing time by more than 50% for a hydroxyapatite, biocompatible ink used for 3D printed bone scaffolds
- Analyzed powder samples with scanning electron microscopy and x-ray diffraction
- Fabricated multilayer rectilinear scaffolds using a direct-write, extrusion 3D printer controlled via MATLAB scripts

### Apple

Audio Product Design Co-Op

Cupertino, CA

January - August 2019

- Coordinated a 3-month live-on comfort study and evaluated acoustic performance for AirPods Pro
- Designed a power cable retention mechanism for preliminary, product reliability testing on HomePod Mini
- Collaborated across cross-functional teams including Industrial Design, Manufacturing, Tooling, Reliability, and Acoustics

### PSYONIC

Mechanical Design Intern

Champaign, IL

August - December 2018

- Manufactured 3D printed, carbon fiber, and silicon-molded components for the Ability Hand™ (bionic hand for amputees)
- Implemented preliminary touch feedback sensors into molded finger prototypes

### Fermi National Accelerator Laboratory

QuarkNet Intern

Batavia, IL

June - August 2017

- Implemented a testing device to assist in tuning cosmic microwave background detectors on the South Pole Telescope

## PROJECT HIGHLIGHTS

### NASA L'SPACE Mission Concept Academy

May - August 2020

- Professional development program introducing NASA mission protocols through a design project and trainings from engineers

### Sol Flower

January - May 2020

- Kinetic clock and sculpture portraying the natural motions of a sunflower via dynamic mechanisms with intermittent motion

## SKILLS & CERTIFICATIONS

**Certifications:** NX CAD Design Certification (Siemens Digital Industries Software)

**CAD/Software:** Siemens NX, PTC Creo, SolidWorks, Autodesk Inventor, Autodesk Fusion 360, MATLAB, Python, HTML, GitHub

**Prototyping & Testing:** 3D Printing, Laser Cutting, Soldering, Shop Tools, Scanning Electron Microscopy, X-Ray Diffraction

## PUBLICATIONS

Ashley A. Armstrong, Arielle Pfeil, Andrew G. Alleyne, Amy J. Wagoner Johnson, "Process monitoring and control strategies in extrusion-based bioprinting to fabricate spatially graded structures," *Biofabrication*, 21, e00126, 2021. 10.1016/j.bprint.2020.e00126

## LEADERSHIP

**Grainger Engineering First-Year Experience** | Lead & MechSE Engineering Learning Assistant

August 2019 - Present

**Women in Mechanical Science and Engineering** | President, External Vice President

August 2018 - Present

**Society of Women Engineers** | Historian, Community Service Chair

August 2017 - Present