**Jack Kaplan**

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**MECHANICAL ENGINEER**

Mechanical Engineer focusing on robotics and design with an extensive track record of success in early-stage rapid prototyping. Possesses expertise in hardware and software. Proven ability to learn and a willingness to ask questions with a drive to continuously improve.

**SKILLS**

**Software**: Computer Aided Design (CAD) – Solidworks and Creo, Solidworks PDM, Windchill, Robot Operating System (ROS/ROS2), Gazebo, Matlab, Python, C++, Arduino, Raspberry Pi

**Prototyping**: Laser Cutting, 3D Printing, Basic Electronics Design, Design of Experiments (DOE)

**Manufacturing:** Sheet Metal Part Design, Injection Molded Part Design, CNC Machining Part Design,

 Finite Element Analysis (FEA), Geometric Dimensioning and Tolerancing (GD&T)

**Administrative:** Technical Writing and Documentation, Microsoft Office

**Coursework:** Automatic Controls, Controls Machine Learning, Autonomous Robotics,

 Control System Design, Human Factors and Ergonomics

**PROFESSIONAL EXPERIENCE**

**Meta Reality Labs**, Redmond, WA July 2023 – Present

**Contract Mechatronics Engineer**

Improving the reliability of Meta’s virtual reality (VR) and augmented reality (AR) hardware by creating automated testing fixtures

* Created a fixture to simulate human bone response for impact testing

**Amazon Robotics**, Seattle, WA September 2021 – March 2023

**Mechanical Engineer**

Hardware design for Amazon Scout, Amazon’s mobile robotics delivery program

* Designed patent-pending hardware system enabling charging for [Scout robots](https://www.aboutamazon.com/news/transportation/meet-scout) in the field while reducing cost 50% over existing solutions
* Coordinated with product and industrial design teams to create requirements for and to test the customer facing audio experience, facilitating community acceptance of Scout
* Managed vendors to ensure products delivered met desired specifications, reducing operations downtime

**BioRobotics Laboratory** Seattle, WA January 2020 – June 2021

**Graduate Research Assistant**

Worked under [*Blake Hannaford*](https://people.ece.uw.edu/hannaford/) to research multi-modal tissue characterization in surgical robotics

* Used sensor fusion to provide force and position feedback for a computer-controlled, minimally invasive, “Smart Grasper” surgical robot
* Implemented a force-limited position control law to allow for manipulating tissue without damage
* Mentored an undergraduate student, teaching him the fundamentals of research
* Published and presented paper at 2021 International Symposium on Medical Robotics (please see Publications section below)

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**Amazon Robotics**, Seattle, WA June 2020 – September 2020

**Mechanical Engineer Intern**

Designed and prototyped a method to secure Amazon Scout robots for transport in a van

* Balanced usability and ergonomics against requests to maximize the number of robots in each van with the goal of minimizing both the robot deployment time and the total number of vans required to support the fleet
* Collaborated with a contract manufacturer to do design for manufacturing (DFM) work on sheet metal prototype in preparation for a production run
* Thoroughly documented process and results to facilitate handoff at the completion of the internship ensuring project continuation and implementation

**Mixer Design Group**, Austin, TX January 2019 – March 2019

**Contract Mechanical Engineer**

Aided in the mechanical design of the Bose Frames Audio Sunglasses

* Designed an injected molded part to aid in characterizing the feel of opening and closing the sunglasses
* Created an Arduino controlled testing fixture to accelerate product lifecycle testing

**Function Engineering**, Palo Alto, CA May 2017 – August 2017

**Mechanical Engineer Intern**

Assisted staff engineers with testing and debugging

* Assisted in the design, assembly, and debugging of a control unit to test the mechanical features on a prototype medical device
* Created test fixtures to experimentally determine the values of various material and system properties

**Octavo Systems** Houston, TX May 2015 – August 2015

**System Modeling Intern**

Used finite element analysis (FEA) to determine maximum expected temperature of a system-on-chip for different power consumption levels

**EDUCATION**

**Master of Science (M.S.), Mechanical Engineering (2021)**

University of Washington, Seattle, WA

**Bachelor of Science (B.S.), Mechanical Engineering and Engineering Design, Magna Cum Laude (2018)**

Rice University, Houston, TX

**Beginning C++ Programming Certification (2023)**

Udemy (4 Month Course) - [Certificate of Completion](https://www.udemy.com/certificate/UC-06bb1437-832a-495b-86e9-af3d5b25eed7/)

**Publications**

J. Kaplan, Y. Sosnovskaya, M. Arnold and B. Hannaford, "Sensor Fusion for Force and Position Calibration of a Motorized Surgical Smart Grasper," *2021 International Symposium on Medical Robotics (ISMR)*, Atlanta, GA, USA, 2021, pp. 1-7, [doi: 10.1109/ISMR48346.2021.9661520](https://ieeexplore.ieee.org/document/9661520/citations?tabFilter=papers#citations).

**LANGUAGES**

English (Native), Spanish (Conversational Fluency)

**AWARDS AND SOCIETIES**

Phi Beta Kappa (2018), Tau Beta Pi (2017), Eagle Scout (2013)