Alexander Hahnsuk Pak

US Citizen | Los Angeles, California | in/alexander-pak
Website Portfolio: alexanderpak.com

EDUCATION

BS Mechanical Engineering '23 - 3.873 GPA — University of California, Los Angeles (UCLA) • Los Angeles, CA
MS Mechanical Engineering '26 - In Progress — University of California, Los Angeles (UCLA) • Los Angeles, CA

SKILLS & CERTIFICATIONS

Software: SolidWorks CAD/FEA | ABAQUS | Onshape | Excel | HTML/CSS | Python | C++ | MATLAB | GCode
Technical: CNC Machining | Milling Operations | Lathe Operations | FDM & SLA Printing | Laser Cutting | DFMA

Certifications: SolidWorks CSWA | FE Mechanical
Languages: English (Native), Korean (Fluent)

WORK EXPERIENCE

Motiv Space Systems *Details protected by NDA — **April 2023 - February 2024**
Mechanical Design Engineer
- Create CAD assembly of a lead screw/nut wear and backlash test that mimics loads applied on a "spherical" oldham
- Prepare AI&T and TRR Packages for lead screw/nut test as a part of a $1 Million effort to reduce flight hardware risk
- Draft, redline, and release engineering drawings for test assembly using GD&T standards
- Collaborate closely with manufacturing, electrical, and analysis engineers to apply best DFMA principles
- Communicate efficiently between different parties, and adapt to changing NTE zones and new load requirements

CCRS Harnessing Engineer
- Responsible for delivering all electrical signal from NASA Goddard's Enclosure to NASA JPL's End Effector
- Design flight bulkheads, clamps, flex cable, and wire harnessing for NASA Mars CCRS Gantry to remove 30% of mass
- CAD model a twist capsule for flex cable compliance in 270 degrees of rotation, qualified through physical protyping
- Model mechanical structure to interface harnessing to actuators and structure to improve failing deflections by 400%
- Tabulate and locate harnessing component masses and load capacities for analysis against JPL requirements
- Presented CDR Level PPT Presentations to NASA JPL and other stakeholders

Hard Media, Inc. / DSPORT — **June 2022 - September 2022**
CNC Manufacturing Intern
- Program conversational GCode using 4-axis CNC Machine to increase cylinder sizes and car engine efficiency
- Use CNC to probe engine blocks, guide blocks, and other parts with a tolerance of 0.0005"
- Take measurements to model prototypes in SolidWorks and 3D print/machine model to prove fit and function
- Scan custom manifold gaskets and CNC machine car engine manifolds to match

UCLA Samueli Engineering Makerspace — **September 2021 - June 2023**
Engineering Technician
- Use and repair 3D printers, laser cutters, plasma cutter, power tools, and more Makerspace tools
- Thousands of hours in FDM and SLA 3D printer usage and maintenance
- Organization of hundreds of spools of filament, drill bits, hand tools, etc.
- Create, teach and assist users of the Makerspace with safety procedures on tool usage
- Communicate technical details of tools to both knowledgable and first-time users

JLaserVideo (Video Link: https://youtu.be/21ucmScfQT4) — **April 2022 - May 2022**
Lego Batmobile Engineer
- Recreated a Batmobile out of Lego, a functioning automobile with contraptions!
- Used both mechanical and bonded fastening measures to create a Lego transport system to dispense 1 m^3 of bricks
- Budget and purchase COTS items to minimize time costs and complete project in a two week time frame
- Documentation of not only engineering design, but also the design process and procedures to create final video

REASEARCH EXPERIENCE

Biomechatronics Lab — **August 2022 - June 2023**
Undergraduate Researcher
- CAD Model the lab's 5 robotic arms to interface them with Meta's open source camera-based tactile sensor (DIGIT)
- Model and manufacture modular DIGIT housing for rapid mounting between manipulators and component replacement
- Design mount for DIGIT on a modified CNC system to compare and characterize its force sensing
- Improved DIGIT's reliability of silicone gel manufacturing by implementing standardized vacuum curing process