JOE KARAM

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| karamjoe | joekk13 |

EDUCATION

The Pennsylvania State University *Aug 2022*
Masters of Engineering in *Engineering Design* *State College, PA*
3.9/4.0

California State University – Chico *May 2021*
Bachelor of Science in *Mechanical Engineering* *Chico, CA*
3.6/4.0 (junior & senior)

PROFESSIONAL EXPERIENCE

Hardware Design Engineer *Oct 2022 – Present*
Cleo Robotics Inc. *Boston, MA*
- Testing and optimizing multiple prototype iterations to enhance functionality/manufacturability
- Utilizing Solidworks to design and develop drone components, leveraging 3D printing technologies (SLA and FDM)
- Collaborating seamlessly with cross-functional teams (programming/electronics), to ensure the feasibility and practicality of designs
- Employing high-precision sensors to collect and analyze extensive data sets, enabling the optimization of computational fluid dynamics (CFD) studies

Computational Design Intern *May 2022 – Aug 2022*
Craftnetics Inc. *Roseville, CA*
- Programmed a patent-pending computational add-on for continuous and automated Additive Manufacturing
- Developed the front-end and back-end of a web-based application using CAD (Autodesk Fusion 360) API

PROJECTS

The Learning Factory's Vending Machine (PSU Learning Factory)
- Headed the software/electrical team in controlling, wiring, and programming applications
- Employed human-centered methods (interviews, user-testing) to target a specific population's demands
- Underwent eight prototype iterations to deliver a transferable, reliable, user-friendly, and engaging end product

Design for Additive Manufacturing (DfAM)
- Created an interactive tool as a Design for Additive Manufacturing (DfAM) framework, assisting beginners in successfully 3D printing models
- Explored and integrated opportunistic and restrictive thinking to design for 3D printing, encompassing both plastics and metals

Bathtub Redesign (Design for Human Variability)
- Designed a universal bathtub optimizing water consumption while maximizing accommodation
- Developed the CAD model parametrically in Grasshopper
- Performed weighed multivariate analysis using open-source anthropometric datasets in R studio

Compliant and Intelligent Grasping with Parallel Kinematic Mechanism
- Modeled the system's chassis and conducted both static and dynamic FEA using Solidworks
- Implemented detailed dimensioning/tolerancing (along with DFM) and successfully built the robot's chassis
- Documented expenses (budgeting, detailed BOMs) and completed 2D CAD drawings for the whole project

CORE TECHNICAL SKILLS

Languages: English (Fluent), French (Fluent), Arabic (Native)

CAD Software: SolidWorks, Rhino 6.0 (with Grasshopper), Autodesk Fusion 360, AutoCAD, nTopology

Languages (Programming): Python, R (statistics), C++ (Arduino), MATLAB, HTML, CSS, JavaScript

Extra Design Skills: Human-Centered, Parametric Design, Additive Manufacturing (3D printing), Human Variability, Rendering, FEA (static and dynamic), Data Manipulation for Design, Drafting, Motor Control, DfM