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

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 web-based front and back-end using CAD (Autodesk Fusion 360) API

Undergraduate Design Research Assistant *Mar 2020 – Dec 2020*
California State University - Chico *Chico, CA*
- Formulated a 3D convex hull algorithm in Grasshopper (visual programming)
- Minimized geometric file sizes in Rhino using the algorithm

Mechanical Engineering Intern *Jul 2019 – Aug 2019*
Phoenix Machinery s.a.l (member of INDEVCO group) *Tabarja, Lebanon*
- Modeled a firefighting hydrant system for Phoenix's plant
- Researched and executed HVAC and plumbing solutions for INDEVCO's new HQ

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 a DfAM framework (interactive tool) that assists beginners in 3D printing successful models
- Explored and integrated opportunistic and restrictive thinking to design for 3D printing (plastics & metals)
- Executed rapid prototyping to produce complex parts/assemblies

Bathtub Redesign (Design for Human Variability)
- Designed a universal bathtub that optimizes water consumption while maximizing accommodation
- Developed the CAD model in Grasshopper parametrically
- 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 (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 (statistical computing), Arduino, Front-End (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