# JOE KARAM

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| karamjoe | joekk13 |

## EDUCATION

**The Pennsylvania State University** *August 2022*
Masters of Engineering in *Engineering Design*

**California State University – Chico** *Jan 2019 – May 2021*
Bachelor of Science in *Mechanical Engineering*
3.085 Cumulative GPA (3.6 during junior and senior years)

**Lebanese American University – Byblos (Lebanon)** *Aug 2015 – Dec 2018*
Course Emphasis in *Mechanical Engineering*

## PROFESSIONAL EXPERIENCE

**Undergraduate Research Assistant** *Mar 2020 – Dec 2020*
*California State University - Chico* *Chico, CA*
- Researched the design exploration of indoor agricultural systems
- Assisted the faculty in executing algorithms (3D convex hull) and monitoring the resulting data

**Control Systems Design Grader** *Oct 2020 – Dec 2020*
*California State University – Chico* *Chico, CA*
- Evaluated student assignments (homework/exams) related to this course

**Industrial Internship** *Jul 2019 – Aug 2019*
*Phoenix Machinery s.a.l* *Tabarja, Lebanon*
- Modeled a firefighting hydrant system for Phoenix's plant
- Collaborated in HVAC and plumbing projects for industrial applications
- Enhanced my skillset in "Elite Fire Software" and "AutoCAD"

## PROJECTS (please visit my website for more projects)

**Compliant and Intelligent Grasping with Parallel Kinematic Mechanism and its Agricultural Application**
- Designed the chassis with both static and dynamic analysis
- Implemented transformation matrices and velocity predictions (timing) in the main code
- Optimized and analyzed the budget for the whole project

**Robotic Collaboration for Timber Construction (MECA-470 Robotics Engineering Project)**
- Developed and organized a 17 Degree of Freedom system based on ETH Zurich's work
- Provided a controller for the system in python and established a connection to ROS
- Algorithm (automation in construction) work in progress in Grasshopper (CAD, Rhino with GH)

**Design Exploration for Indoor Agricultural System (Summer 2020 Research)**
- Generated a geometrical simplification algorithm for various plant geometries in Rhino (3D convex hull)
- Researched towards geometrical optimization (light, reachability) for plant placements

**** please visit my personal website for a detailed view (+more projects)***

## CORE TECHNICAL SKILLS

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

**Software:** Rhino 6.0 (with Grasshopper), SolidWorks, nTopology, NI LabView 2019, Autodesk Fusion 360, Siemens NX, CoppeliaSim (former V-Rep), Robo DK 5.0, ROS 1.0 (some certifications can be found in my LinkedIn "Licenses & certifications" section)

**Languages (Programming):** Python, R (statistical computing), Arduino, MATLAB