Amir Tadros

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EDUCATION and SKILLS

University of California, Irvine   Graduate *June 2023*

    B.S. in Mechanical Engineering, Specialization in Design of Mechanical Systems

      Skills: SOLIDWORKS, CURA, MATLAB, FEA, GD&T, MS Office, Adobe Illustrator, 3D Printing, Laser Cutting, Soldering

    Minor in Computer Science

      Skills: C/C++, Python, MIPS, Microcontrollers, Embedded Systems, Computer Architecture, Digital Logic Design, IoT, AI

PROFESSIONAL EXPERIENCE

Lighter Than Air (LTA) Research and Exploration, Mechanical Engineering Intern   *January 2021 – August 2022*

LTA Research is an aerospace research and development company building experimental and certified manned and remotely piloted airships.

- 3D modeled 1,000+ parts and assemblies in SOLIDWORKS for flight hardware, assembly jigs, and testing equipment
- Designed 50+ diagrams using SOLIDWORKS Drawings and Adobe Illustrator for installation procedures
- Managed multiple projects resulting in the design, fabrication, and installation of essential electro-mechanical systems

UCI Cargo Plane Project   *July 2021 – Present*

UCI Cargo Plane is a senior design competition project competing to build the best low speed, high lift aircraft to carry soccer balls and metal weights.

    Project Manager   *March 2022 – Present*

- Leading a team of 36 engineers to build an 8' wingspan cargo airplane to carry soccer balls and metal weights
- Own PM responsibilities including organizing meetings, maintaining a Gantt chart, and writing progress reports
- Created and maintaining a budget of $5000 by managing sub team purchase orders and monitoring team resources

    Structures Team Lead   *July 2021 – March 2022*

- Led a team of 9 engineers through the structural design process given parameters from other teams
- Met with other team leaders to manage inter-team tasks and report progress updates
- Created SOLIDWORKS library of templated parts and assemblies to accelerate future years' development

Stanford Robotic Exploration Lab (REx), Drone Engineering Intern   *May 2019 – August 2019*

The Robotic Exploration Lab conducts research in control, motion planning, and navigation for robotic systems that explore our planet and our universe.

- Mechanically designed and assembled a fleet of 5 drones to be used by Stanford graduate students for computational research
- Designed and fabricated circuit to interface traditional Radio Receiver, Drone Flight Controller, and ODROID-XU4
- Created engineering drawings and instructions to maintain or rebuild drones throughout their lifetime

PERSONAL PROJECTS

Autonomous Pneumatic Cart   *March 2022 – June 2022*

For this competition, we began with a set of pneumatic and electrical components and tasked with designing and programming a cart that successfully navigated a course.

- Designed and manufactured crank shaft power train, Akerman steering assembly, and chassis in SOLIDWORKS
- Programed Arduino with lowpass filter for our compass module (Hardware I^2C) to remove noisy data when solenoid fires
- Used a reed switch and magnets as interrupts to create a digital timing belt for firing our pneumatic piston crank shaft
- Tracked position, velocity, and acceleration for our custom closed loop PID controller to accurately navigate the course

SafeCycle – ESP-32 Based IoT Sport Tracker   *March 2022 – June 2022*

We designed an IoT device that can track a biker's position, velocity, and acceleration to provide useful information and call emergency services if we detect a fall or crash.

- Used NEO-6M GPS (Serial) and IMU (Hardware I^2C) to track location and acceleration
- Programmed device to communicated with smartphone via BLE and send data to Flask server
- Displayed live information feed from sensors on an OLED display (Hardware I^2C) mounted on top of our device
- Processed user input via 2 buttons to make selections, trigger interrupts, and support deep sleep functionality

Monster Sudoku Solver AI   *January 2022 – March 2022*

Program an AI that can solve a Sudoku board of any size or shape using a variety of heuristic strategies.

- Designed and developed an AI that can solve a sudoku board of any size or shape given any number of values
- Implemented 5 different heuristics to find the optimal Sudoku solving strategy
- Collaborated with team members on a remote server with team members via SSH and git

Certificates and Memberships

Certified SOLIDWORKS Professional - Mechanical Design   *August 2021*

Proven ability to design and analyze parametric parts and moveable assemblies using a variety of complex features in SOLIDWORKS software.

ASME   *November 2020*

National Speech and Debate Association Degree of Distinction   *May 2019*

Eagle Scout   *November 2018*

Interests: Sailing (UCI Sailing Team Captain), Cooking, Baking, Music, Gaming, Travel, Hiking, Camping