

# Grant Howard

## Mechanical Engineer | Technician Specialist

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### PROFESSIONAL SUMMARY

Detail-oriented Mechanical Engineer with hands-on expertise in prototyping, CAD design, and IoT integration. Experienced in leading cross-functional projects from concept through execution, with strong capabilities in 3D modeling (SolidWorks, Fusion 360), FEA analysis (ANSYS), and embedded systems (Arduino, C++). Proven success mentoring engineering teams, maintaining lab equipment, and optimizing systems for sustainability and education. I am known for clear technical communication, strong problem-solving skills, and a proactive approach to design, testing, and process improvement. Passionate about bridging innovation and application in fast-paced, real-world environments.

### EDUCATION

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**University of Texas at Tyler, Houston, TX**

**Dec 2024**

*Bachelor of Science in Mechanical Engineering (BSME)*

### PROFESSIONAL EXPERIENCE

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**Houston Community College, Katy, TX**

**Oct 2024**

*Technician Specialist*

- Mentored the Katy Rocketry Club in rocket telemetry, guiding students through rocket design, construction, and data analysis to improve launch success and increase engagement.
- Led training sessions on makerspace equipment (3D printers, laser engravers, vinyl cutters, soldering stations), helping over 50 students' complete projects safely and effectively.
- Introduced interactive demos and personalized feedback on 3D design platforms (Fusion 360, SolidWorks), boosting student confidence and producing innovative prototypes.
- Increased makerspace usage by conducting campus tours, hosting info sessions, and integrating tools into assignments, resulting in higher student involvement and technical skill development.
- Maintained equipment efficiency through a preventive maintenance schedule, staff training on troubleshooting, and enforced safety protocols, reducing downtime by 50%.

**Freelance Repair & Restoration Tech**

**May 2016**

*Owner/Technician*

- Offered hydro powered preventative maintenance and restoration to early stage deteriorating vehicles & residential homes which prevented \$10,000's of future repairs and replacements.
- Provided automotive repairs, diagnostics, and routine maintenance for fuel economy/vehicle longevity.
- Sourcing proper material and hardware for long term durability and sustainability pre and post installation of the project and client requirements/expectations.

## PROJECTS & EXTRACURRICULAR

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### **Designing and Testing of a solar Charging Station for Micro-Mobility, Portable Devices and Energy Education (Team Lead)**

**Jan 2024**

- Designed and built a 300 W solar charging station with a 1,000 Wh battery system, charge controller, and power inverter, capable of supporting devices up to 500 W.
- Conducted testing and data analysis to optimize energy output, ensuring reliable functionality for micro-mobility (e.g., scooters) and portable devices.
- Demonstrated the station's impact in various settings, including community outreach and university events, emphasizing renewable energy education for underrepresented communities.
- Achieved notable recognition, placing 3rd in a national Community Energy Innovation Prize competition among hundreds of teams and securing \$50,000 for the university.
- Served as team lead, overseeing deliverables, coordinating schedules, and ensuring the project was completed on time and within scope.

### **Independent Study (IoT Integration & Educational Tools)**

**Aug 2024**

- Troubleshoot and restored laboratory equipment, bringing key teaching tools back online for future classes and enhancing the hands-on learning environment.
- Developed a new course outline, including material highlights and learning objectives, to expand the engineering curriculum for the university.
- Upgraded the solar charging station by integrating Arduino Cloud IoT for remote monitoring and online lab lectures, enabling real-time data access and off-campus demonstrations.
- Facilitated online learning by creating a remote-access platform, allowing students to interact with and study system performance from anywhere.
- Advanced engineering education at the university by supporting innovative lab experiences and showcasing the value of IoT-enabled technologies in sustainable energy systems.

### **Makerspace Technician Specialist**

**Jan 2025**

- Developed a cost-effective RFID tagging solution by repurposing waste materials, enabling efficient student ID management through NFC technology and automated data entry workflows
- Led a cross-departmental research initiative with the Agricultural Department to design and test biodegradable seed germination enclosures, focusing on optimizing material decomposition rates for sustainable greenhouse applications.

## SKILLS

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**Programming languages:** C++, C-Star

**Computer software/ frameworks:** Arduino, Fusion 360, ANSYS, SolidWorks, MATLAB, Tinker CAD, AutoCAD

**Hardware:** Low-voltage systems, microcontrollers, soldering stations, 3D Printing (FDM), Epilog fusion laser printers, electrical and mechanical design

**Additional Skills & Specialties:** Finite Element Analysis, Product Design, Embedded Systems, Plasma torch/cutter, TIG Welding

## CERTIFICATIONS

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MATLAB Onramp Certification/ MathWorks (2024)

ANSYS simulation Certification/ Ansys Inc. (2023)

AutoCAD Certification/ Autodesk (2022)

Fusion 360 Certification/ Autodesk (2023)

