Hannah Huang

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EDUCATION

Northwestern University **Evanston, IL**
Bachelor of Science in Mechanical Engineering—Concentration in Manufacturing September 2019-June 2023
Master of Science in Mechanical Engineering—Specialization in Robotics and Control April 2022-June 2023

- **Cumulative GPA:** 3.98/4.00 (Summa Cum Laude)

EXPERIENCE

Boeing Commercial Airplanes **Renton, WA**
737 Mechanical/Hydraulic Systems, Design Engineer *September 2023-Current*

- Support emergent issues in production of 737 MAX hydraulic systems by regularly redesigning and drafting parts and assemblies to alleviate leaks, mechanic safety, and out-of-compliance installations.
- Key participant in an ongoing audit of the design and build of the entire hydraulic system by reviewing all relevant drawings, notes, and build plans, witnessing critical installations, analyzing in-service and factory data, and performing failure analysis.
- Redesigned a previously casted manifold to be entirely machined. Created a 3D model-based definition with GD&T from hand drawings using CATIA V5, and worked with the supplier to verify manufacturability and clarify design requirements.

SpaceX **Cape Canaveral, FL**
Starship Ground Support, Manufacturing Engineering Intern *June 2022-September 2022*

- Managed multiple builds of fluid systems in Starship Launch Mount 2 by translating drawings and P&IDs to clear work instructions, sourcing over $350K in parts, and taking full ownership of the build until completion.
- Extensively communicated with technicians, design engineers, supply chain, and vendors on challenges such as adjusting to a constantly changing design, quick procurement of long-lead-time parts, and adhering to a fast-paced build schedule.
- Created, revised, and reviewed designs and drawings in Siemens NX for welded-pipe assemblies and machined parts.

Northwestern Baja SAE Car Team **Evanston, IL**
Chassis Lead *September 2021-June 2023*

- Utilized SolidWorks Weldments to design an off-roading car frame that adheres to Baja SAE rules; worked closely with other sub team lead to integrate the geometry and function of the powertrain, suspension, and overall ergonomics.
- Decreased weight of frame by 20% and number of tubes by 15%, which overall improves fuel efficiency and weldability.
- Managed projects of 10 sub-team members by teaching SolidWorks, guiding design decisions, and overseeing deadlines.
- Operated machine shop equipment, such as the mill, lathe, band saw, sheet metal bender, and waterjet.

W. K. Liu Northwestern Research Group **Evanston, IL**
Undergraduate Researcher *June 2020-June 2022*

- Published in *Computational Materials Science* with first author designation after training a neural network model to inform the creation of unidirectional composite materials; presented findings at the 2021 MMLDT-CSET conference.
- Generated 15,000 mechanical responses for 12 different composite materials with varied filler volume fractions and temperatures by using a modified FEA approach to increase computational speed, at little cost to accuracy.
- Extensively cleaned and analyzed data through Python, using principal component analysis, data scaling/normalization, etc.

Northwestern Senior Capstone "Smart e-Bike" **Evanston, IL**
Mechatronics / Software Engineer *September 2021-March 2022*

- Built an electric bike for our client, Altair, with 6 teammates that provided motorized assist based on biometric feedback (heart rate/user power input) to provide a more comfortable and safe riding experience for more physically vulnerable users.
- Controlled a brushless DC motor with ESP32 microcontrollers based on Bluetooth-communicated sensor data, and sent sensor data via MQTT protocols to Altair's SmartWorks IoT cloud platform.
- Coded a React Native webapp that allowed the user to change assist modes, visualize real-time sensor data and motor assist, and create user profiles by communicating with SmartWorks IoT over HTTP protocols.
- Interviewed the client and target users to specify quantifiable needs; extensively researched existing competing products, related patents, and available parts to drive hardware selection, software development, and prototype testing.

Illinois Tool Works Commercial Construction North America **Itasca, IL**
Manufacturing Engineering Intern *June 2021-September 2021*

- Modeled and created drawings for 6 SolidWorks assemblies, 2 having over 100 parts, and worked directly with vendors for fabrication; 4 designs are being used in production, including a quality-test fixture and a packaging line layout.
- Identified root issues through downtime tracking, operator feedback, and machine observation; quantitatively prioritized certain issues; and implemented quick-fixes to ensure continual short-term production while designing long-term solutions.

SKILLS

- **Engineering Software:** SolidWorks, Siemens NX/Teamcenter, CATIA/ENOVIA LCA, Simulink, AutoCAD, ANSYS
- **Manufacturing:** GD&T, Process Control, Shop Equipment (Mill, Lathe, CNC, etc.), 3D Printing, Process Control
- **Programming & Mechatronics:** MATLAB, Python, C/C++, Embedded Systems, PID & Lead/Lag control
- **Other:** Data Science, Leadership, Project Ownership, Detail Oriented, Quick Learner