Nathan Hon

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INTERNSHIPS

HARBINGER MOTORS — **Los Angeles, CA**
Product Engineer — *Sep 2025 – Dec 2025*

- Optimized component geometry through HyperMesh simulations, enabling a 25% weight reduction and significant cost savings
- Self-led redesign of the forging and machining process for park lock hardware, reducing complexity and improving manufacturability
- Characterized stator creep failure mode leading to rotor rub and implemented interim containment actions for prebuilt drive units while engineering mechanical countermeasures for future production

HARBINGER MOTORS — **Los Angeles, CA**
Powertrain Engineer — *Jan 2025 – Apr 2025*

- Performed ratchet, cyclic, and high-load testing on EV park lock systems to identify failure modes under grade load conditions. Redesigned test rig components in CATIA to improve fixturing enabling more reliable testing that uncovered fracture-prone geometries and drove heat treatment, weight, and dimensional improvements to the park lock assembly
- Developed modal analysis on the EDU housing to identify resonance frequencies and locate structural regions susceptible to noise and vibration-induced issues
- Conducted 5 kV HiPot insulation resistance testing on EV stators in a thermal chamber to verify integrity above 250 MΩ at 220 °C. Validated varnish layering strategy and bolt preload effects to guide iterative improvements in motor design

RAYTHEON TECHNOLOGIES — **Dallas, TX**
Process Engineer — *Jun 2024 – Aug 2024*

- Performed transient thermal simulations to optimize oven heating and cooling behavior in a new vacuum lamination process, improving epoxy cure reliability and cutting production time by 65%
- Developed an Ignition dashboard for centralized monitoring of process data across all ovens, facilitating real-time status visibility for technicians and operators to allow for optimized defect tracking and enhanced overall equipment utility
- Integrated an automatic torque machine with built-in torque sensing and vision-based inspection into the assembly line by configuring torque specs, defining pass/fail criteria, and conducting acceptance testing against spec. Authored operator SOPs and trained staff, enabling a 40% reduction in cycle time through automation

BMW MANUFACTURING — **Spartanburg, SC**
Vehicle Assembly Engineer — *Aug 2023 – Dec 2023*

- Designed and validates more than 45 working models and 3D printed over 250 parts to mitigate defects and reduce downtime in the assembly process, resulting in cost savings totaling hundreds-of-thousands of dollars per year
- Spearheaded the implementation of additive manufacturing solutions and successfully justified the establishment of a new design department by presenting to the VP of Assembly, effectively showcasing the capabilities and advantages of additive manufacturing in the context of assembly operations
- Coordinated with cross-functional teams to pioneer the development of a centralized CAD sharing program, establishing the foundational framework to streamline access and facilitate seamless sharing of CAD files throughout the entire plant

SWAP ROBOTICS — **Kitchener, ON**
Mechatronics Engineer — *Jan 2023 – Apr 2023*

- Developed a comprehensive SOP for robot assembly, which drastically decreased onboarding and assembly times
- Constructed and serviced robots, effectively doubling the number of operational units in the fleet and ensuring the maintenance of a continuously expanding robot inventory
- Achieved 3x increase in run times by designing and conducting rigorous testing procedures to simulate real-world usage

EDUCATION

UNIVERSITY OF WATERLOO — **Waterloo, ON**
Mechanical Engineering Senior • 3.7 GPA — *Sep 2022 – May 2027*

PROJECTS

UWATERLOO BAJA SAE — **Waterloo, ON**
Dynamics Team Lead — *Sep 2022 – Present*

- Managed a 15+ member subteam through coordinating projects and teaching design and manufacturing fundamentals
- Led the design and fabrication of the suspension and steering systems for an off-roading vehicle, using SolidWorks to model a custom double-wishbone geometry. Validated the design with a 1.5 FoS using SimSolid FEA Software

RELEVANT SKILLS

Ansys | Altair | SolidWorks (CSWA) | 3D Printing | CATIA | GD&T | MATLAB | PTC Creo | Fusion 360 | Autodesk Inventor