

Ian Hong, P. Eng

Mechanical Engineer

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Markham, ON



[ianhong95](#)



[Projects](#)

SUMMARY

Licensed Professional Engineer with a B.Eng in Mechanical Engineering, 8 years of experience in mechanical design, and a passion for automation and technology. Hobbies include piano, badminton, and building robots.

TECHNICAL SKILLS AND SOFTWARE SKILLS

- Engineering calculations (deflection, load, stress), finite element analysis
- Mechanical design, DFMA
- Strong mathematical & analytical skills
- Proficient with CAD and CAE
- Designing, developing, and testing mechanical systems
- Documentation such as test reports and engineering drawings
- Prototyping techniques
- Machining experience
- SolidWorks, AutoCAD, Inventor, Onshape, Fusion360, Siemens NX
- MATLAB, Ansys, Nvidia Isaac Sim
- Linux
- Python, HTML/CSS, JavaScript, VBA

PROFESSIONAL EXPERIENCE

Mechanical Robotics Engineer

Intero Integrity Services (Scarborough, ON) Mar 2023 – Present

- **Lead engineer** on a project to design, manufacture, assemble, and test a weld sensor module.
 - High priority project, delivered all milestones and project closeout within project schedule.
 - Coordinated effort in a multidisciplinary team to ensure no task is blocked.
 - Demonstrated the module's capabilities to clients and received positive feedback.
 - Documented design history, assembly procedure, test procedures, and test results.
- **Lead mechanical engineer** on a project to calibrate sensors.
 - Designed and 3D printed precise locating carriers for sensors to be tested on the station.
 - Wrote Python scripts to perform linear regression on data and analyze accuracy of the calibration.
- Supported the Operations team by investigating field issues and completing Engineering Changes to resolve issues.

Lead Mechanical Engineer, Founding Member

Laplace Robotics Inc. (North York, ON) Oct 2021 – Mar 2023

- **Launched a startup**
 - Founded the company in a cross-disciplinary team of 4
 - Raised over \$1M USD from over 30 angel investors and venture capital firms in the pre-seed round
- **Design and assembly of robot work cells** comprising of a mounting structure, industrial robotic arm, customized pneumatic end-effector, and vision system for automation and defect rejection in the food industry
- **Designed many styles of grippers** – vacuum cups, pneumatic parallel grippers, and motorized parallel grippers to perform actions requiring high dexterity such as picking and placing objects of varying geometry
- **Finite Element Analysis** – Performed FEAs to determine potential points of high deflection and stress
- **Rapid Prototyping** – Modelled parts and assemblies in Onshape and used fused-deposition modeling (FDM) 3D printers to rapid-prototype gripper concepts, which were then deployed at customer facilities
- **Documentation** – Produced thorough documentation on Scope of Work, Bill of Materials, and Risk Assessments

Product Engineer

OASYS Healthcare (Uxbridge, ON) Jun 2018 – Sep 2021

- Major role in the design and testing of a medical spring arm, which generated over \$2M in annual revenue
- Optimization of part geometry using FEA for maximum strength based on allowable stress and deflection criteria
- Designed plastic parts to be manufactured by **injection molding** using materials such as ABS and polypropylene
- Machined parts using equipment such as a mill and lathe for prototyping
- Performed mechanical validation testing such as load testing, fatigue testing, and cycle testing
- Prepared technical documentation such as test reports, product specifications, and Bills of Materials