Kingsley Fong

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Website | LinkedIn | GitHub

Skills

Design & Prototyping: SolidWorks (CSWP), ANSYS (FEA), GD&T & DFMA, FDM/SLA Printing, CNC Machining
Manufacturing & Operations: PFMEA, RCA/CAPA (8D, 5-Why, Fishbone, Pareto), Lean Manufacturing/5S, Kaizen
Software & Firmware: Python, C++, Arduino, ESP32, MATLAB, Excel VBA, Power BI, NumPy, Pandas, Matplotlib

Experience

Manufacturing Engineering Intern **Jan. 2026 - Apr. 2026**
S&C Electric Etobicoke, ON

- Engineered 2 line-side assembly fixtures using SolidWorks, BOMs, & sheet-metal drawings, coordinating with vendors and machine shop to improve cycle time for packaging/assembly operations.
- Built Azure-linked Power BI dashboards for manufacturing reviews, implementing KPI trackers and real-time drilldowns to reduce weekly safety and hazard review times by 64%.
- Developed Excel VBA material-flow tracker and barcode Kanban system with reorder logic and bin validation, reducing parts lookup, replenishment errors, and downtime.
- Conducted continuous improvement and time studies on constrained assembly lines, identifying line bottlenecks to drive an 3% throughput increase and a 12% cycle-time reduction.

Mechanical Engineering Intern **May 2025 - Aug. 2025**
Paragon Systems Concord, ON

- Designed and upgraded a centralized dust-collection system from 3 to 8 stations, boosting airflow by 10.5% and decreasing particulate-related product reruns by 22%.
- Designed modular test fixtures in SolidWorks using GD&T and structural BOMs, improving test setup alignment repeatability while increasing overall testing throughput.
- Executed vibration, shock, and ingress protection (IP) hardware validation under international ISO/IEC standards, standardizing test procedures to reduce setup variability and retests.
- Developed Python-based log parsers to automate test-data post-processing, extracting key performance metrics to slash test reporting cycle times from 2 hours to 15 minutes.

Product Design & Manufacturing Lead **Mar. 2025 - Dec. 2025**
Guerrilla Gear Remote (Austin, TX)

- Engineered modular mechanical architecture (Base + Extender) for the Guerrilla Pin product line, optimizing structural configurations to resolve critical machine-clearance gaps.
- Validated V2 metal components through structural FEA to ensure a 2.5x safety factor, coordinating high-volume production runs using Slant 3D (FDM) and Xometry (CNC machining).
- Sourced US-based manufacturing vendors and implemented H7/g6 precision sliding fits alongside custom inspection protocols to eliminate field failures and scale production.

Projects & Design Teams

Waterloo Aerial Robotics Group | SolidWorks, DFM, FEA, Tolerance Stackups **Jan. 2025 - Dec. 2025**

- Designed and modeled hexacopter payload mechanics and landing gear in SolidWorks, implementing carbon fiber members and anti-tipping bars to ensure flight structural integrity.
- Performed tolerance stackups and clearance analysis on mating payload components, angling landing gear legs to guarantee concentric alignment with a water-retrieval bucket.

Brick It - Autonomous LEGO® 3D Printer | SolidWorks, C++, GD&T, DFMA, Full-stack **Jan. 2025 - April 2025**

- Developed mechanical architecture and slicer CAD-to-toolpath integration for an autonomous LEGO printer, achieving a 9.5s cycle time and 92% accuracy over 100+ build cycles.
- Designed and verified modular gantry, magazine, and structural frames using GD&T and FEA, reducing overall parts count by 30% and improving end-effector stiffness by 15%.

Trace It – Interactive Targeting System | SOLIDWORKS, Arduino, C++, CNC, FEA **Sep. 2024 - Dec. 2024**

- Engineered a belt-driven motion platform with closed-loop stepper control and IR sensing, achieving 95% target detection accuracy and stable tracking at 8 cm/s travel speeds.
- Applied DFM and tolerance stackup analysis to iterate mechanical structural components, leveraging CNC and additive prototyping to simplify physical assembly procedures.

Education

University of Waterloo **2024 – 2029**
Candidate for a Bachelor of Applied Science in Mechanical Engineering Waterloo, ON