Raymond (Mingguang) Yang

Philadelphia, PA| Willing to relocate

P:+1(445)208-3603 |minggyan@seas.upenn.edu| Portfolio: @mingg10

EDUCATION BACKGROUND

University of Pennsylvania,* Philadelphia, PA** — ***Aug 2024 – May 2026 (Expected)

M.S.E. in **Mechanical Engineering** (Mechatronics and Robotics stream), GPA **3.95/4.00**

University of Toronto,* Toronto, Canada** — ***Sep 2019 – June 2024

B.A.Sc. with Honors in **Mechanical Engineering** (Mechatronics and Manufacturing stream), GPA **3.77/4.00**

SKILLS & QUALIFICATIONS

Design & CAD: SolidWorks (advanced), Creo Parametric, CATIA, Blender, 3D printing, machining & prototyping

Simulation & Analysis: ANSYS, Abaqus, COMSOL, MATLAB, FEA (thermal/structural/electromagnetic)

Manufacturing & Testing: DFM, Quality control, hands-on bring-up (cable harness, perf-board prototyping, actuator wiring), Lean/ISO standards

Programming & Control: Python, robotics kinematics, C++, Control Algorithms

MECHANICAL EXPERIENCES

Multi-Platform Lunar Rover System (NASA LuSTR),* UPenn,** Philadelphia, PA — ***Jan 2025 – Feb 2026 (Expected)

- **Designed and modeled** an aluminum chassis and turret assembly in **SolidWorks**, supporting a **60 kg combined load** while reducing mass by ~15 % through DFM optimization.
- **Performed tolerance and fit analysis** on multi-robot docking interfaces; validated **±3 mm** alignment and achieved > **95 % docking success** in field tests.
- **Collaborated on sensor and motor mount designs**, ensuring precise axis alignment and cable routing for clean integration with the ROS2 control stack.

Automated Adhesive Workstation,* UofT,** Toronto, Canada — ***Apr 2023 – Dec 2023

- **Designed and assembled** a pneumatic adhesive dispensing station in **SolidWorks**, comprising **40 + components** including extrusion frame, gantry slides, and press modules.
- **Created 3D CAD models, exploded views, and BOMs**; configured pneumatic cylinders and adjustable nozzles to achieve **~40% cycle-time reduction** and **±0.2 mm coating accuracy**.
- **Integrated actuator and sensor mounts** for automation control, reduced assembly time to **less than 10hr** and simplified maintenance access during testing.

Lathe Tool & Grinding Head Assembly,* UofT,** Toronto, Canada — ***Jan 2022 – May 2022

- **Developed** a concept for an automated lathe tool grinder with **3-DOF orientation** and independent **X–Y feed and Z lift** mechanisms, enabling repeatable tool geometry and angle accuracy within **±0.05°**.
- **Designed mechanical subsystems** including cast base, ribbed frame, and bearing-supported spindle to maximize stiffness and minimize thermal growth; improved predicted vibration response by **>30 %** through load-path optimization.
- **Integrated serviceability and control provisions**, such as removable guards, labeled wiring harnesses, and placeholders for servo/PLC drives to support future programmable feed sequences.

INDUSTRY EXPERIENCES

Process Engineer*, Bittele Electronics Inc.,** Toronto, Canada — ***May 2022 – Sep 2023

- **Reviewed 300 + PCB and mechanical assemblies** for DFM and IPC-A-610 compliance, identifying manufacturability issues early in production.
- **Implemented FMEA-based validation** to improve reliability from prototype-level 3σ to 6σ, reducing rework and scrap across pilot builds.

Mechanical Engineer*, Jiangnan Mould & Plastic Technology Co., Ltd,** Shanghai, China — ***Apr 2021 – Aug 2021

- **Designed and validated** 3 + automotive bumper prototypes in **CATIA V5**, performing tolerance analysis and **GD&T** review for **Tier 1 OEM** projects.
- **Tested 10+ iterations** of full-scale prototypes to meet design specifications and standards.
- **Conducted** structural and load analysis with **Abaqus**, collaborating with CAE engineers to reduce injection molding production failure rate by **~2%**.