Raymond (Mingguang) Yang

Philadelphia, PA| Willing to relocate

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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, GD&T, DFM, machining & prototyping
Simulation & Analysis: ANSYS, Abaqus, COMSOL, MATLAB, FEA (thermal/structural/electromagnetic)
Manufacturing & Testing: Machining, Fixture Design, Quality control,PFMEA, 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 workstation** in **SolidWorks** using machined aluminum components , linear slides, and press modules for automated production use.
- **Configured** pneumatic cylinders and adjustable nozzles to achieve **±0.2 mm coating accuracy** across **100+ production trials**; documented calibration and safety procedures.
- **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*
- **Designed** a **3-DOF lathe tool grinding head** with bearing-supported spindle and precision ball-screw feed, achieving **±0.05° tool geometry repeatability**.
- **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**, 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%**.