

# Vanessa Noel

## Mechanical / Mechatronics Engineer

vanessa.n.noel@gmail.com | vanessa-noel.com

### Summary of Qualifications/Highlights

---

- **Cross-functional engineer** experienced across mechanical design, embedded systems, controls, and electrical integration.
- **Served as Responsible Engineer for the company's first automated feeding system**, owning implementation, deployment, and production support.
- **Led customer-facing robotic implementations**, working directly with customers to understand manufacturing processes through observation, CAD, and documentation review.
- **Optimized robot motion and control logic to meet cycle-time requirements**, tuning motion profiles and control parameters to improve throughput while maintaining safety and reliability.
- **Implemented the full control and system safety architecture**, ensuring safe operation, fault handling, and protection against self-damage and unsafe states.
- **Deployed and supported robotic cells on-site**, specifying, wiring, and programming control hardware for optical and proximity sensors, vacuum/venturi systems, and pressure sensing; troubleshooting mechanical, electrical, and software issues during development, commissioning, and production.
- **Performed on-site installation, commissioning, and repair**, traveling to customer facilities to resolve mechanical, electrical, and software failures and restore production.
- **Developed the company's first universal end-of-arm tool**, enabling reliable picking of objects with varying geometries and sizes.
- **Created user manuals, bring-up guides, and training documentation**, supporting system deployment, operation, and ongoing maintenance.

### Experience

---

**Mechanical Engineer, Launchpad Build** April 2024 – Present

- **Delivered the company's first production-ready robot**, serving as the Responsible Engineer, owning implementation and deployment.
- **Operated in a fast-paced startup environment**, taking ownership of multidisciplinary projects from concept through deployment.
- **Developed the full hardware and controls software in Python**, implementing motion sequencing, sensor handling, fault management, and automated testing.
- **Designed robotic manipulation solutions**, including custom end-effectors and an adaptive gripper using a non-Newtonian fluid core to handle variable-geometry parts.
- **Designed CAD models and engineering (2D) drawings for robotic tooling and staging equipment**, including end-of-arm tools and part-handling fixtures used in automated manufacturing cells.
- **Built proof-of-concept systems using microcontrollers programmed in C++**, validating concepts and hardware integration prior to full system deployment.
- **Installed, commissioned, and supported robotic systems on-site**, troubleshooting mechanical, electrical, and software issues during deployment and early production.

- **Worked directly with customers, operators, and engineering teams**, providing updates, documentation, post-deployment support, and feeding field learnings back into product improvements.

**Manager, Queen's Space Engineering Team (Design Team)**

2022 – 2024

- **Led end-to-end development of complex electro-mechanical systems**, from early concepts through prototype builds and testing. Using in-flight data and weather prediction, *mission costs were reduced 15% year-over-year*.
- **Owned system-level mechanical and electrical integration**, including structural design, sensor integration, and system-level validation.
- **Defined and executed test plans, collecting and analyzing performance data** (e.g., pressure, temperature, trajectory) to validate system behavior and reliability.
- **Mentored engineers in CAD, embedded systems, and hands-on assembly**, accelerating onboarding and technical growth. Introduced structured onboarding, which *increased member retention by 50%*.

**STEM Outreach Instructor (Mechatronics Engineer), Connections – Queen's University**

2021 - 2024

- **Advanced through multiple roles to Mechatronics Engineer**, taking on increasing responsibility for robotics development, automation, and technical leadership.
- **Founded and led a free satellite program** in partnership with the Canadian Space Agency and Kingston Robotics Lab, enabling at-risk youth to design, assemble, and launch functional satellites.
- **Developed Python-based automation tools** to streamline data analysis and participant management, *reducing manual processing time by >99%*.
- **Designed and taught hands-on robotics and embedded systems courses**, reaching thousands of students and community participants.
- **Secured \$50K in grant funding**, expanding robotics and system development initiatives.

## Education

---

**Queen's University** – BAsC in Mechanical Engineering with a specialization in mechatronics.