Rustem Ismagilov

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Technical Skills

Mechanical Design	Fabrication	Manufacturing	Quality	Hardware
SolidWorks, OnShape, Catia	FDM / Resin 3D printing	Capacity analysis	RCA (FMEA, Fishbone)	Arduino, soldering
GD&T, Fit tolerancing	CNC Lathe/Mill: Ti, PEEK	Layout drafting	Test Planning	Controls (PID)
DFM, CAM	Laser Cutter, Welder	Line commissioning	Keyence, SEM-EDS	Python, Matlab
FEA: Static, Motion, Thermal	Epoxy bonding, Lapping	NC tracking (Pareto, SQL)	Technical Documentation	Oscilloscope, DAQ

Work experience

Mechanical Designer — **(Full-time)** Jan 2026 - Present
Sanctuary AI — **(Part-time)** Oct 2025 – Jan 2026

- **Leading hydraulic sealing Root Cause Analysis** - spanning FMEA, Ishikawa, design iteration, and in-house rapid prototyping and testing.
- Iterated over 16+ actuator configurations utilizing in-house lathe and metrology (profilometer, Keyence IM-X) to characterize seal performance.
- Utilized **SEM-EDS** to perform in-depth actuator bore analysis - identifying contamination **element composition** and surface damage patterns.
- **Achieved 400K+ cycle leakless performance from a 5K baseline**; identified manufacturing inconsistency as primary variation factor.
- Developed comprehensive **test documentation and process control methodology**, directly informing **production RFQ**.

Manufacturing Engineer, Co-op — Sep 2024 – Aug 2025
Tesla Inc. – Optimus Actuators manufacturing

- **Designed and built** over **60x tools and fixtures** to enable actuator production and **build 50x Teslabots** in time for ***We Robot* event**.
- **Led the development of manufacturing interfaces** for rotary actuators by coordinating cross-functional meetings with design and integration teams, resulting in **detailed documentation** for automated assembly processes.
- **Identified over 20x DFM improvements** of the rotary actuator to be implemented in next gen actuators to improve its manufacturability.
- **Conducted OEE study and drafted assembly** line layout by capturing 10+ hours of production footage with GoPro.
- Independently **managed the receipt and installation of over 100x workstations** and related equipment within a **1-month** period.
- **Managed a rotary actuator production line for 3 months**, reporting yield performance, testing, and performing **root cause analysis** on top Pareto failures, while maintaining and reissuing line tooling.

Mechanical Design Engineer, Co-op — **(Part-time)** Apr - Aug 2024
Ideon Technologies — **(Full-time)** Sep - Dec 2023

- **Developed Work instructions** and **Quality Control procedures** for production, **facilitating manufacturing outsourcing** in the **US.**
- **Conducted** and **documented** the **Process Failure Mode and Effects Analysis (PFMEA)** of the new product.
- **Organized** an **assembly line** for the fabrication **of muon tomography detectors**.
- **Supervised** a team of **seven technicians**, achieving high **productivity** and **meeting tight deadlines**.
- **Designed**, **procured** equipment, and **assembled** a **600W heat chamber** to perform **Thermal Failure Mode** testing.
- Utilized the designed heat chamber and DAQ system to **identify a thermal fault condition** via **120 hours** testing **procedure.**

Mechanical Design Engineer, Co-op — Jan - May 2023
Dometic

- **Organized**, and integrated over **300 requirement clauses** derived from **8 distinct IEC standards** into a comprehensive **testing plan map**.
- **Designed, assembled, and utilized a heat chamber test bench** to test an RV-heater against **12x IEC standards** and prove its compliance.
- **Upgraded** the **electrical** and **controls** components of the **pump test bench**, effectively **doubling** its **throughput** from 5 to 10 pumps, **resulting** in **1680** additional **hours of runtime.**

Electrical Research Assistant, Co-op — May - Sep 2022
SFU's Power Electronics and Energy Applications Laboratory

- **Devised a test bench** to validate the accuracy of **Zubieta's model** on a single **BCAP3000 supercapacitor.**
- **Designed** a custom **PCB** circuit in **Altium** to amplify the over-shunt signal read by the **DAQ** system.

Education and Student Clubs

Simon Fraser University: BASc - Mechatronics Systems Engineering **CGPA = 3.76** — Sep 2019 – Dec 2025

Thrust Vector Control Team lead - SFU Rocketry club — Feb – Aug 2024

- **Founded and led TVC subteam** - team structure, weekly meetings, and accountability across 5 engineers over 5 months
- **Delivered first TVC module design, BOM, drawings, Simulink simulation, and hardware approach** for a 25kN bipropellant rocket.
- Recognized as **fastest and most productive subteam** by club leadership, contributing to the **$30K DarkVision award-winning presentation**.