

Matthew Nikolic

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Skills

Mechanical Design and Analysis: SolidWorks, Onshape, AutoCAD, Inventor, FEA, GD&T, DFM, DFA, Load Analysis
Prototyping and Manufacturing: Rapid Prototyping, Assembly, CNC Machining, Dimensional Inspection, 3D Printing
Systems and Testing: Root-Cause Analysis, Validation Testing, BOMs, Technical Documentation, Excel
Programming and Controls: C, C++, MATLAB, Python, CAN, Motor Control, Electronics Debugging

Experience

Co-Founder & Mechanical Design Lead, Otis Dynamics – Burnaby, BC Jun 2026 – Present

- Lead mechanical design of a modular robotic arm in Onshape, developing structural links, actuator housings, fastener interfaces, and mechanical packaging for repeatable assembly and servicing
- Perform static load calculations and actuator trade studies across torque, thermal capability, distal mass, load paths, packaging, manufacturability, controls requirements, cost, and supplier constraints
- Built and commissioned a 7-actuator 48 V prototype through staged assembly and testing, verifying CAN communication, position feedback, motion limits, fault behavior, and hardware cutoff while developing BOMs and test procedures

Mechanical CADD Co-op, BC Hydro – Burnaby, BC May 2025 – Jan 2026

- Produced and revised 300+ engineering drawings and 3D models for mechanical, HVAC, plumbing, and fire-protection systems at hydroelectric generating stations using AutoCAD and Inventor
- Prepared detailed fabrication and installation drawings with dimensions, notes, views, and component details under the PSPC National CADD Standard, supporting manufacturing and equipment installation
- Coordinated technical revisions across mechanical, electrical, and civil teams, incorporating supplied field measurements and design changes into controlled fabrication and installation documentation

Co-President, SFU Mechatronic Systems Engineering Student Society – Surrey, BC May 2025 – May 2026

- Led a 17-person executive team, managed a \$50,000+ budget, and coordinated university and industry stakeholders while organizing engineering events serving 600+ students

CNC Machine Operator, Modern Engineering – Delta, BC Jul 2023 – Aug 2023

- Operated five-axis CNC mills and CNC lathes for production machining, loading, monitoring, cleaning, and servicing equipment while producing 50+ parts per day
- Inspected 20+ parts per day to tolerances within ± 0.002 in using calipers, micrometers, and gauges, supporting dimensional quality in a production environment

Projects

Electromechanical Jellyfish Umbrella, SFU FAS Competition 2026 matthewnikolic.ca/jellyfish-umbrella

- Led mechanical design, rapid prototyping, fabrication, and assembly of an 8-tentacle servo-actuated umbrella, earning 3rd place in the SFU Faculty of Applied Sciences Competition
- Iterated pin-jointed geometry, snap fits, cable routing, and 3D-printed tolerances through repeated assembly testing, developing a dual-servo mechanism that reliably actuated eight coordinated tentacles

4-DOF Pick-and-Place Robot Arm matthewnikolic.ca/robot-arm

- Designed, prototyped, and assembled a 4-DOF SCARA-style robot arm in SolidWorks using geared, belt-driven, and lead-screw transmissions, applying DFM and DFA to the 3D-printed structure
- Integrated C++ motion control with mechanical and electrical hardware, troubleshooting subsystem interactions through iterative testing and using SolidWorks FEA to evaluate extended-link structural behavior

Education

Simon Fraser University, Surrey, BC – BAsC in Mechatronic Systems Engineering Expected August 2028
Certifications: SOLIDWORKS CSWA, SFU CNC Machining, Siemens Mechatronics