

PIYUSH SHAH

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WORK EXPERIENCE

BAS Controls Specialist Co-op

Integrated Control Systems Inc.

May 2026 – Present

Winnipeg, Manitoba

- Program closed-loop control sequences (PID loops, setpoint scheduling, interlocks) from contractor Sequence of Operation narratives, translating process intent into DDC logic across 4+ commercial projects
- Commission 150+ controllers governing AHUs, pumps, and boilers on live BACnet MS/TP and Modbus RTU/TCP networks, verifying each against its control narrative
- Calibrate analog field sensors and transmitters during commissioning
- Troubleshoot field faults end-to-end during commissioning, isolating whether a problem is in the control logic, the network, or the physical wiring
- Produce 4+ control drawings covering control wiring, field device installation, panel layouts, and termination details

Electrical Technician

Tamarack Industries

June 2025 – Sep 2025

Winnipeg, Manitoba

- Assembled and wired 100+ industrial control panels and chassis harnesses for glycol heating equipment, interpreting schematic drawings to ensure compliance with client specifications and industrial standards
- Prepared layout boards for engine chassis harnesses and organized wiring routes prior to assembly.
- Collaborated with engineers to troubleshoot production issues.

TECHNICAL SKILLS

PLCs & Control Platforms: Allen-Bradley CompactLogix, Siemens S7, Arduino

Instrumentation: 4–20 mA signal loops, sensor calibration, transmitter wiring, loop commissioning, P&ID interpretation

Protocols & Networking: BACnet MS/TP, Modbus RTU/TCP, EtherNet/IP, OPC-UA, RS-485

Programming: Ladder Logic, Function Block, C++, MATLAB, Python (NumPy, Pandas, scikit-learn)

Software & Tools: AutoCAD, Visio, Solid Works, LabVIEW, Multisim, MS Office, Grafana, WebCTRL

EDUCATION

Instrumentation and Control Engineering Technology

Red River College

Fall 2024 – Dec 2026

Winnipeg, Manitoba

Bachelor of Computer Science, (Completed 2 years)

University of Manitoba

Fall 2022 – Spring 2024

Winnipeg, Manitoba

TECHNICAL PROJECTS

Water Tank Level Control with FactoryTalk HMI

March 2026

- Designed a cascade PIDE control strategy on Allen-Bradley CompactLogix (Studio 5000), with an outer tank-level loop driving an inner inlet-flow loop so upstream supply disturbances are corrected before they affect tank level
- Configured PIDE instructions with engineering-unit scaling, anti-windup, and bumpless auto/manual transfer, then autotuned both loops in sequence (inner first, then outer) and validated against step tests
- Built a full FactoryTalk View Studio SE operator interface with an animated tank graphic, live PV/SP/output trends, setpoint entry, start/stop controls, and a tiered ISA-18.2-style alarm banner

AI-Assisted Predictive Maintenance System

Feb 2026 - Present

- Built a multi-sensor motor health monitoring system (ADXL345 for vibration, MLX90614 for IR temperature, ACS712 for current) with an Arduino handling real-time data acquisition
- Pulled time- and frequency-domain (FFT) features from the sensor data and trained a Random Forest classifier (scikit-learn) to distinguish healthy motors from degraded ones

Closed-Loop PID Temperature Control (IMC Tuning)

April 2026

- Identified an FOPDT process model by running open-loop step-response tests on an Arduino-driven heater and thermistor setup
- Calculated starting PID parameters using Internal Model Control (IMC) tuning, then refined them through iteration
- Achieved a clean setpoint response with about 2% overshoot, following the same characterize-model-tune-validate workflow used to tune loops in a plant