Andrei Veremeenko

SCADA Systems Analyst

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Profile

Andrei has focused on developing SCADA systems and Power System simulations. His work includes designing HMIs for electrical substations, running real-time simulations, and mentoring students in SCADA development. Andrei is finishing last semester of Energy Systems Engineering Technology program at Mohawk College.

Professional Experience

SCADA Systems Analyst - Applied Research - Energy & Power Innovation Centre, Mohawk College

2025 to present

- Human-Machine Interface (HMI) designer for SCADA projects in the electrical field.
- Develop SCADA applications in Ignition Designer, including tag configuration, alarming, historian trending, role-based security, and Python and SQL scripting.
- Lead an Applied Research project, mentoring students in developing SCADA for power systems.
- Developed a pipeline to perform power system simulations using OPAL-RT equipment and HYPERSIM software.
- Supported the Battery Workforce Challenge (BWC) in collaboration with McMaster University, assisting with battery capacity testing and the eventual assembly of the battery pack.

Education

- Advanced Diploma – Energy Systems Engineering Technology, Mohawk College, 2027
- Ignition 8.3 Credential – Inductive University (Inductive Automation), 2026

Projects & Research

1. **IESO Clarkson Head Office – SCADA System Design**:

The IESO Clarkson Head Office facility's SCADA system was outdated and required replacement. Andrei led the HMI design using Ignition software, building an Ignition 8.3 Perspective application. Data from an SEL RTAC is brought in over DNP3 to drive single-line diagram displays with breaker control, alarming, a sequence-of-events (SOE) log, and historian trend charts. Andrei also designed role-based user access, resolved an RTAC-to-Ignition timestamp discrepancy, and extracted I/O

point lists from DC schematics. The system is built on a redundant master/backup gateway pair with SQL Server historian storage.

2. **Case Study – SCADA for Power Systems:**

Building on EPIC's experience delivering substation SCADA systems, Andrei co-developed a training case study for Engineering Technology students. The SCADA for Power Systems project is now a 13-week Applied Research project in which Electrical and Mechatronics students build an Ignition 8.3 Perspective HMI for a simulated substation. Andrei designed the students' Inductive University study plan and wrote a series of reinforcement assignments (dynamic alarming, navigation and popups, event logging). Each assignment builds one part of the final project and includes optional extension challenges with a suggested approach. A reference solution followed each assignment so students could check their work against best practices. The team also built a test rack modelled on a real substation, with SEL-751 feeder protection relays, an SEL RTAC and Ethernet switches, driven by an OMICRON CMC test set running RelaySimTest. Students then connect their Ignition projects to the rack to visualize simulated measurements on a single-line diagram and operate the circuit breaker over DNP3.

3. **Battery Workforce Challenge – High-Voltage Battery Pack Testing & Assembly:**

As part of the joint McMaster University–Mohawk College team in the Battery Workforce Challenge, Andrei performed capacity testing of battery modules on a Chroma 17020 Regenerative Battery Pack Test System, exporting the logged data to CSV and building capacity graphs in Excel. He completed high-voltage safety training at Stellantis headquarters in Detroit, Michigan, working in the required high-voltage PPE. He then returned for a second session to assemble the battery pack under high-voltage conditions, connecting the individual modules into the complete pack. The McMaster–Mohawk team placed 2nd out of 12 teams across North America.