John Granholm

Senior Controls Engineer | Controls & Automation | Robotics | ML & Logic Systems | Data Science

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Professional Summary

Versatile **Senior Controls & Automation Engineer** with over 10 years of expertise in **EPMS/BMS systems**, **Allen-Bradley** (ControlLogix, CompactLogix, RSLogix 5000, Studio 5000), **Siemens TIA Portal** (Step 7), and **DeltaV DCS**. Proven track record in **critical facility controls**, **robotics integration**, **machine learning–driven automation**, and **process optimization**. Adept at managing complex industrial networks, optimizing power and building management systems, and deploying cutting-edge automation for high-availability environments. Published iOS developer with extensive hands-on experience across mechanical, electrical, and software disciplines.

Key Skills & Competencies

PLC & Automation Systems

- Allen-Bradley (ControlLogix, CompactLogix, MicroLogix, RSLogix 500/5000, Studio 5000, FactoryTalk)
- Siemens PLCs (TIA Portal – Step 7, S7-1200/1500)
- DeltaV DCS, SAMA diagrams, loop tuning
- Analog signal processing, VFDs, PID control

EPMS/BMS Systems

- Schneider, Siemens, and Tridium Niagara frameworks
- Electrical Power Monitoring Systems integration and optimization
- Critical environment building automation (cooling, power, environmental control)
- Alarm response, root cause analysis, and redundancy planning

Robotics & Vision Systems

- Fanuc, Universal Robots (UR series), ABB, KUKA
- Cognex & OpenCV machine vision
- Arduino & Raspberry Pi integration

Machine Learning & Software

- Python, PyTorch, TensorFlow, ONNX
- Unity/C#, .NET, Swift, JavaScript, SQL
- Published iOS applications

Infrastructure & Data Visualization

- AWS, Azure, Kubernetes, Docker, Git, Tableau, Power BI, DataMesh, Hadoop

Networking & Cybersecurity

- Industrial network design & management
- Cybersecurity protocols, system hardening

Curriculum & Education

- Industrial automation training development
- LLM-driven certification exam design

Professional Experience

Controls Engineer – EPMS/BMS Systems

Confidential Data Center, Chicago, IL | 2025–Present

- Manage and maintain **Electrical Power Monitoring Systems (EPMS)** and **Building Management Systems (BMS)** for high-availability mission-critical facilities.
- Diagnose, troubleshoot, and resolve control system faults impacting **power distribution**, **cooling systems**, and **environmental conditions**.
- Integrate and optimize BMS/EPMS data streams for **real-time monitoring, predictive maintenance, and analytics**.
- Coordinate with IT and facilities teams to implement **redundancy and failover strategies** for critical control infrastructure.
- Lead **alarm management and root cause analysis**, ensuring rapid response to potential operational risks.
- Support system upgrades and **cybersecurity hardening** to meet industry compliance standards.

Lead Instructor – Robotics & Mechatronics

Wake Technical Community College, Raleigh, NC | 2020–2025

- Trained and certified 1,000+ students in automation, robotics, PLC integration, troubleshooting, pneumatics, hydraulics, and mechanical drive systems.
- Developed virtual PLC simulations (Studio 5000, Siemens TIA Portal) using Python, C#, and .NET for remote learning.
- Engineered AI-powered exam engine generating 20,000+ verified certification questions.
- Integrated Raspberry Pi and Python-based ML automation for smarter safety systems.

ML-Driven Automation Engineer *(Self-Employed)*

Durham, NC | 2017–Present

- Designed ML-powered sliding door systems using Raspberry Pi, Python, and OpenCV for local businesses.
- Built modular ML infrastructure with PyTorch for real-time model deployment.
- Improved automation reliability by optimizing vision systems to reduce false triggers.

Machine Programmer – Controls & Automation

Mertek Solutions, Inc., Sanford, NC | 2018–2020

- Maintained and optimized Allen-Bradley CompactLogix-based robotic systems and automation lines.
- Integrated pneumatics, VFDs, analog sensors, and electro-mechanical devices with PLCs.
- Led system upgrades aligned with stringent safety and compliance requirements.

IT Assistant – Network & Systems Infrastructure

Research Triangle Foundation, Durham, NC | 2017–2018

- Enhanced automation tools and supported critical network infrastructure operations.

Education

B.S. in Geology (Quantitative Geoscience)

Appalachian State University, Boone, NC | 2014–2017

Minor: Mathematics | Coursework: Computer Science, Data Science, Machine Learning

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Certifications

- Emerson DeltaV DCS Experience

- Fanuc Certified Operator & Tool Handling
- SACA C-101 Industry 4.0 Associate
- PMMI: Industrial Electricity, Mechanical Components, PLCs, Fluid Power

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Projects & Achievements

- **EPMS/BMS Optimization** – Improved data center control response time by integrating real-time analytics and predictive maintenance alerts.
- **Allen-Bradley PLC Optimization** – Enhanced system reliability and compliance with ControlLogix/CompactLogix improvements.
- **Siemens TIA Integration** – Delivered custom S7 PLC solutions for complex industrial processes.
- **Smart Sliding Doors (ML)** – Deployed affordable ML-based entrance systems using computer vision algorithms.
- **AR Ladder Logic Simulator (iOS)** – Unity/C# app published on Apple's App Store, boosting student pass rates by 90%+.
- **Robotic Vision Integration** – Combined Fanuc robotics with Raspberry Pi and Allen-Bradley PLCs for advanced manufacturing.
- **LLM Assessment Engine** – Developed NLP-driven automation for generating standardized industrial certification content.

Awards & Publications

- **AGU Data Visualization Award** – Recognized for immersive VR training innovation
- Publications: Geological Society of America, American Geophysical Union