

# Andrew G. Gurik

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Software engineer with 12 years of experience in embedded systems and controls. Most recently delivering precision agriculture software solutions using modern C++ and Qt frameworks.

## CORE COMPETENCIES

C++	C	GNU/Linux
Matlab & Simulink	Qt Framework	Git
Embedded Systems	Robotics	PID Control
GCC	CMake	Conan
Software Design	OpenGL	Computer Vision
CAN/J1939/ISOBUS	Precision Agriculture	

## EXPERIENCE

**Ag Leader Technology** 2018 - present

**Staff Software Engineer** *2023 - present*

- Lead development of next-generation precision agriculture displays, implementing advanced **3D geospatial mapping engine** using **Qt3D** and **OpenGL** in an **embedded Linux** environment
- Architect and implement automated grain cart alignment system using **computer vision** (**VPI April-Tag**) on **NVIDIA Jetson Orin Nano SOM**
- Drive technical direction and mentor team members in modern C++, **embedded systems**, and **real-time graphics**

**Senior Software Engineer** 2021 - 2023

- Led Scrum team developing precision agriculture software for in-cab displays and **CAN bus (J1939)** connected modules
- Designed and implemented precision nozzle-control spraying system, including touch UI, **CAN protocol**, **embedded architecture**, and **PID control systems**
- Spearheaded next-generation product development, focusing on **real-time performance** and **user experience**

**Software Engineer** 2018 - 2021

- Developed software for precision agriculture displays using **Qt/QML** and **C++** with **CAN bus (J1939 & ISOBUS)**
- Created high-speed planting system with real-time control and monitoring
- Maintained critical systems including planter downforce and ISOBUS dry spreader

**Randstad Technologies** 2017 - 2018

**Software Engineer** – (Caterpillar) Core Machine Software

- Enhanced Virtual Platform ecosystem with **Simulink**, **Python**, **C#**, and **C++** tooling
- Implemented **Google Test** infrastructure for automated testing
- Developed cross-application testing framework for machine software validation

**Caterpillar, Inc.** 2013 - 2016  
**Software Engineer**  
*Core Machine Software*

- Developed Windows-based transmission control simulation environment
- Designed scalable architecture supporting hundreds of applications across product lines
- Integrated virtual **CAN Bus** simulation with comprehensive testing framework

*Drivetrain Systems & Software - Large Mining Trucks*

- Led development of embedded control systems for hydraulic transmissions
- Managed global development teams and implemented **CI/CD** practices
- Pioneered simulation and software-in-loop testing methodologies

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## EDUCATION

**B.S. Electrical Engineering** Iowa State University, 2012

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## VOLUNTEER EXPERIENCE

**FIRST Robotics Competition** FRC Team Neutrino 4H

- Lead and Controls Mentor FRC Team Neutrino 4H