

# Andrew G. Gurik

✉ andrewgurik@gmail.com ☎ (309) 868-4405 🗺 Ames, IA

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

## CORE COMPETENCIES

C++	C	GNU/Linux
Matlab & Simulink	Qt Framework	Git
Embedded Systems	Robotics	Classical Control Systems
CAN/J1939/ISOBUS	GCC	OpenGL

## EXPERIENCE

### Ag Leader Technology — Staff Software Engineer

2018 - Present

Currently implementing agricultural vehicle automation system using VPI AprilTag Detector on NVIDIA Jetson

#### In-Cab Touchscreen Display – InCommand Go

- Lead development of next-generation precision agriculture displays, implementing advanced 3D mapping engine using Qt3D and OpenGL in an embedded Linux environment (i.MX8 QM)
- Integrate new 3D map engine with legacy codebase while optimizing for graphics performance using available software profiling tools. -Develop custom OpenGL ES shaders for improved rendering performance.

#### Liquid Application Control – L2 & RightSpot

- Create proprietary liquid application control system for precision agriculture sprayer.
- Develop controls for liquid pressure control and flow rate control for servo and pwm valves.
- Design a CAN protocol to communicate with 3rd party pwm nozzle by nozzle sprayer system and develop controls for nozzle duty-cycle.
- Design and implement software for integrating with OEM vehicles over j1939 as well as simulators for testing and implementing the vehicle integration.

#### High Speed Planting – SureSpeed

- Create new high-speed planting system using BLDC motors for seed meter and seed tube and proprietary sensors communicating over j1939.
- Implement touch based user interface for in-cab display for improved diagnostic features.

### Randstad Technologies — Software Engineer

2017 - 2018

#### Caterpillar – Core Machine Software

Create desktop ecosystem for running embedded code interfacing with Simulink, C#, C++, and GTest

### Caterpillar, Inc. — Software Engineer

2013 - 2016

Drivetrain Systems & Software - Large Mining Trucks  
Powershift transmission clutch control using C and Simulink

## EDUCATION

---

Iowa State University — B.S. Electrical Engineering

2012

## VOLUNTEER EXPERIENCE

---

### FIRST Robotics Competition — Mentor

Team Neutrino 4H — Lead Mentor (Controls)

2012, 2020 - Present

Robot Casserole — Mechanical Mentor

2013 - 2016