# CATE MILLER

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## EXPERIENCE

**Cubic Transportation Systems** May 2019 - June 2023
**Principal Software Engineer** San Diego, California

Designed and developed transportation industry device software solutions currently deployed by multiple public transit agency customers, including New York, Boston, Chicago, and Brisbane

- Developed software for public transportation payment validation devices in C++ and C#, for both Linux and Windows platforms
- Developed embedded firmware for the control and operation of subway gates, utilizing the Kiel uVision IDE and debugging tools, and maintained API documentation
- Became a team expert on the payment devices' low level software component which communicates with the gate's microcontroller
- Designed and developed a simulation tool, including its user interface, to facilitate the testing of devices in a lab environment
- Wrote software design documents and presented them before program managers, systems engineers, and other senior developers during software architecture governance reviews
- Served as lead engineer for the design and development of multiple new features - decomposed features into user stories, provided guidance to junior engineers, and led integration efforts in a lab environment, while constantly collaborating with program management and other stakeholders to ensure that the team's solutions met customer needs and requirements
- Wrote unit tests and participated in integration testing for new features and bug fixes
- Utilized version control systems such as Git
- Worked in a Scaled Agile Framework (SAFe) environment and obtained SAFe Product Owner/Product Manager certification

**SkySafe** July 2017 - April 2019
**Software Defined Radio Engineer** San Diego, California

Developed, optimized, and maintained RF signal processing software as an early team member in a drone defense and airspace control startup, funded by Andreessen Horowitz and DIUx

- Developed high performance signal processing and control software in C++ and Python
- Reverse engineered commercial and hobbyist drone communication and control protocols
- Led the research and development of mitigation techniques for a common RF protocol, including the integration of detection and attack capabilities into a large piece of the final product
- Tested all software components extensively in simulation, anechoic chamber, and field test environments to ensure quality before demonstration and delivery to potential military, public safety, and commercial customers
- Contributed to the full stack development of the product's web application
- Implemented and submitted GitHub pull requests for bug fixes and new features to the open source GNURadio project to improve reliability
- Created and maintained the software team's continuous integration server and collection of unit tests using the Python-based Buildbot framework, automated and deployed using Ansible

**Northrop Grumman** September 2016 - July 2017
**Senior Systems Engineer** San Diego, California

Tested software applications and developed systems engineering tools in the Aerospace Systems business sector

- Developed internal tools to enhance requirements management software and automatically manage documents and procedures
- Created and executed test procedures for qualification test activities
- Identified, documented, and verified the correction of software defects

**Lockheed Martin** July 2013 - September 2016
**Associate Member of Engineering Staff** Cherry Hill, New Jersey

Designed, implemented, and tested software applications and hardware prototypes as a research engineer in the Advanced Technology Laboratory's Spectrum Systems Laboratory

- Developed and implemented machine learning and signal processing algorithms, as well as performance analysis tools, for advanced research applications and demonstrations using C++, Python, and MATLAB
- Designed, implemented, and tested custom DSP FPGA cores in Verilog
- Built software defined radio applications with the open source GNURadio framework and Ettus USRP FPGA architecture
- Oversaw a technical relationship with a software subcontractor, including the integration, testing, and performance evaluation of their contributions
- Presented technical concepts to customers, including DARPA, at design reviews and led the execution of several over-the-air field test events and real-time demonstrations

## EDUCATION

**The University of Texas at Austin** May 2013
**B.S. Electrical Engineering** Austin, Texas

Technical Area
Computer Architecture and Embedded Systems