Nathan Fettinger

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Summary

Senior Software Engineer in aviation with over 5 years of experience developing mission critical solutions with a focus on embedded development, a cross platform kernels, and robust & scalable operating systems

Experience

Boston Scientific	**Senior Software Engineer – Firmware**	Arden Hills, MN

Cardiac Rhythm Management — April 2017 – Present
- Support hardware software integration through platform selection and Kernel & Operating System design
- Work collaboratively on projects with other divisions including Endoscopy, Neurology, Urology, etc

Garmin International	**Senior Software Engineer - Aviation**	Olathe, KS

Aviation Panel Mount Displays — June 2012 – 2017
- Planned and managed new technology verification and certification effort with 10+ interns
- Prototyped, designed, reviewed, and certified new software modules and technologies
- Balanced and prioritized issues based on failure conditions and FAA Design Assurance Levels
- Tested design and implementation of all individual changes, reviewed changes and tests made by others

Simulator and Demonstration Mode – Primary Component Owner
- Developed and maintain regression tests as well as benchmarks
- Supported and improve PC driven cockpit simulators
- Performed project management for intern driven development; including creating well defined subtasks, assigning prioritization, time estimations, balancing work loads, etc.
- Created and maintained documentation on how to configure, develop, and debug the component and simulators

Kernel Library - Component Owner
- Supervised, change control, and road map planning of the Operating System shared across all aviation product lines and remote offices
- Balanced software performance, robustness, scalability, and maintainability
- Added support for new hardware, provided design recommendations, debugged layout and electrical issues
- Updated the boot loader to support project dependent memory channels & sizes, and a recovery kernel to support remote software loading, allowing developers to recover a bricked unit without a JTAG debugger
- Managed compatibility with multiple concurrent hardware platforms

Social Committee

Education

Michigan Technological University	Houghton, MI

M.S. in Computer Engineering — 2012
- *Relevant Courses*: Embedded Sensor Networks, Distributed Embedded Control Systems, Computer Networks, Distribution System Emergency, Artificial Intelligence, GPU and Multicore Programming, Graph Theory and Optimization, Detection & Estimation Theory, Advanced Computer Architecture

B.S. Double Major in Electrical and Computer Engineering — 2010
- Study Abroad: University of Malta — 2009
- Internship: Skyweb Networks (ISP) — 2008

Master's Thesis

Electric Vehicle Charge Scheduling and Optimization

Problem: Charging the batteries of electric vehicles will increase the residential electricity demand by approximately 40% per household. If unscheduled, this aggregated demand will threaten grid stability during peak usage hours, which can sustain only a marginal increase.

Proposed Solution: Implement a primary distribution controller to collect Location Marginal Pricing (LMP) predictions, time constraints, and charger constraints in order to schedule the charging and discharging of participating vehicles in the distribution system. Under the right electricity pricing plans, this can even reduce the current aggregated peak household usage.

Projected Outcome: This scheduling would optimize power usage through increased base loads with little to no increase in the peak demand. Scheduling could also improve power quality and minimize utility operating costs.

Teaching Experience

Michigan Technological University	Houghton, MI

Graduate Teaching Assistant - Outstanding Teaching Award — 2011
- 7 semesters of teaching Electrical Engineering labs

Learning Center Coach (Undergraduate)
- 2 years in Electrical Engineering and an additional 2 years in Computer Engineering

Skills

See my personal website for a full list