Matthew Sullivan

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Objective

To pursue a professional career in electrical engineering, designing embedded analog and digital systems, industrial automation and control systems, or communication systems

Education

Minnesota State University, Mankato December 2006
Bachelor of Science: Electrical Engineering GPA: 3.51/4.00 Local 3.34/4.00 Total

Work Experience

Minnesota State University, Mankato 2005
Undergraduate Lab Assistant

- Taught introductory linear circuits lab
- Demonstrated key concepts to students before labs
- Helped students to understand lab material

Holden Village, WA
Repair Associate, Media technician 2002, 2004

- Repaired electronic and electrical devices such as vacuum cleaners and tape recorders
- Designed power controller to prevent printer from damaging itself after power failures
- Operated audio mixing and recording equipment and video editing devices

University of Minnesota, Twin Cities 2000-2001
Undergraduate research assistant

- Developed Java software to run on smartcards for the Secure File System (SFS)
- Designed software to provide secure key storage on smartcard
- Provided analysis of potential security pitfalls in other parts of software

Central High School: Saint Paul, MN 1997-1998
Systems Administrator

- Operated Linux Sendmail email server and Windows NT web server
- Provided technical support to teachers and other staff
- Trained faculty on software use
- Troubleshot other systems including Netware fileserver and proprietary student database system

Awards/Memberships

- National Merit Scholarship
- Member IEEE 2003-present
- Fundamentals of Engineering test passed

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Projects

Gun trigger position sensor 2006

Designed optical trigger position sensor with RF telemetry for police training with existing handguns

- Maintained proper handgun functionality simultaneous with telemetry
- Completed transmitter including MSP430 microcontroller and CC1100 900MHz digital RF transceiver is about one square inch
- Employed same circuit for transmitter and receiver to reduce design time and circuit board manufacturing cost

Web interface to EnviroAlert 400 from Winland Electronics 2005

Reverse engineered EA400 to add RS232 communications to interface with a Linksys WRT54G wireless router

- Converted wireless router into web, PHP, and mail server
- Provided for remote management of EA400, as well as email and SMS text messaging alerts
- Added automatic battery backup to EA400 and WRT54G to ensure operation during power outages up to one day

Autonomous/remote controlled Robot 2003

Built small robot from surplus components, such as hard disk case, and toy race car motors and drives

- Provided remote control both wired and wireless using different techniques.
- Created autonomous mode for self navigation through maze

Skills

Hardware

- Digital, analog, and RF electronics
- Multiple TI MSP430 MCUs, TI CC1100 RF transceiver
- Linear and nonlinear analog signal processing
- Control systems and DSP
- Power supplies; active and passive filters
- Motor controllers and drive circuitry, and multi-voltage interfacing
- Troubleshooting
- RF and microwave communication systems

Software

- Cadence, Orcad, PSpice, Multisim, EAGLE, LabVIEW, MATLAB
- C, C++, Basic, Java, Scheme, Shell Script, HTML, LaTeX
- DSP algorithm design
- Assembly Language (MSP430, 68HC12)
- Windows 3.0-2003, Office 6.0-2003, etc Linux Debian/Slackware/Redhat

References:

Professor William B. Hudson Ph.D. — Chair Electrical and Computer Engineering and Technology, Minnesota State University, Mankato, 137 Trafton Science Center S., Mankato, MN 56001. Phone: (507)389-5639

More on request