Joshua R. Wiens

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Education

Bachelor of Science – Mechanical Engineering *University of Oklahoma, Norman, OK, May 2017*

- Minor: Electrical and Computer Engineering
- **Primary Focus**: Embedded Control Systems

Skills

Embedded Systems

- Control of Electromechanical Devices
- I^2C Serial Networking/Communication
- Real-Time Sensor Acquisition
- Real-Time Digital Signal Processing
- Interrupt Handling
- Electrical Troubleshooting w/ Tools
- Fabrication/Installation of Cable & Wiring

Programming/Software Engineering

- OO and Function Based C/C++
- OO Python 3
- LabVIEW (Former CLAD)
- Linux Administration
- Event Driven Processes
- Applied State Machine Control
- Version Control /w Git + gitflow

Interpersonal

- Leadership
- Team Communication
- Information Presentation
- Personnel Training
- Customer Service

Professional Experience

Systems Engineering Internship *Ion Beam Applications (IBA), Nov 2015 - Present*

- Proton Therapy system maintenance involving various subsystem including:
  - High power distribution
  - Large scale cooling
  - Mechanical patient positioning and beam delivery
  - High vacuum particle acceleration and transport
- Troubleshooting and resolving day-to-day system failures using various software and measurement tools.

Shift Manager *Five Guys, Jan 2014 – Nov 2015*

- Team Leader, coordinator, and personnel training specialist.
- Detail oriented inventory and money management.

Academic Experience/Achievements

Capstone Team Leader

- Managed simultaneous development of two modular electro-hydraulic subsystems including test systems.
- Fabricated control/power infrastructure for electrical and hydraulic power distribution.
- Developed plug-and-play control module capable of independently controlling each of our 3 subsystems.
  - Designed hierarchical control system for simultaneous sensor acquisition/processing and control.
  - Fabricated microcontroller network via the I^2C serial communication protocol.
  - Capable of receiving 5 Hall effect sensor inputs and control 2 stepper or brushless DC motors using 2 cables.

Autonomous Design Competition

- Developed embedded control system applying digital signal processing (DSP) to external sensor feedback.
- Applied state machine pattern in order to facilitate autonomous environmental reactivity.
- Final product provides full speed/brake control over DC, servo, and stepper motors.
- Used feedback from 1 ultrasonic range sensor and DSP to filter noise and differentiate the signal.
- Achieved highest score out of 30+ 4-man-teams with an unmatched 2 flawless attempts.

References

- Kevin Sturm – Director of Operation IBA, North America; (571) 250-5831; Kevin.Sturm@iba-group.com
- Ruben Reyes – Site Technical Leader IBA, Oklahoma City, OK; (405) 773-6789; Ruben.Reyes@iba-group.com
- Harold Stalford – Professor, OU AME, Norman, OK; (405) 325-1742; stalford@ou.edu
- See LinkedIn projects and SlideShare presentations for examples of some things listed above.