Joshua R. Wiens

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# Education

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

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

# Skills

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| Embedded Systems | Programming/Software Engineering | Interpersonal |
| * Control of Electromechanical Devices * I2C Serial Networking/Communication * Real-Time Sensor Acquisition * Real-Time Digital Signal Processing * Interrupt Handling * Electrical Troubleshooting w/ Tools * Fabrication/Installation of Cable & Wiring | * 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 | * Leadership * Team Communication * Information Presentation * Personnel Training * Customer Service |

# Professional Experience

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| 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.

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

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

# Academic Experience/Achievements

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| 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 I2C serial communication protocol.
  + Capable of receiving 5 Hall effect sensor inputs and control 2 stepper or brushless DC motors using 2 cables.

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| 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](mailto:Kevin.Sturm@iba-group.com)
* Ruben Reyes – Site Technical Leader IBA, Oklahoma City, OK; (405) 773-6789; [Ruben.Reyes@iba-group.com](mailto:Ruben.Reyes@iba-group.com)
* Harold Stalford – Professor, OU AME, Norman, OK; (405) 325-1742; [stalford@ou.edu](mailto:stalford@ou.edu)
* See LinkedIn projects and SlideShare presentations for examples of some things listed above.