MICHAEL R. KLEINIGGER

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http://www.nlvocables.com/blog/?page_id=64

EDUCATION

Master's of Science, Rensselaer Polytechnic Institute, August 2010

- Completed Master's of Science degree in Electrical Engineering (3.52 GPA).
- Received a research assistantship including full tuition and stipend.

Bachelors of Science, Rensselaer Polytechnic Institute, May 2009

- Dual major in Electrical and Mechanical Engineering, with an Economics Minor (3.99 GPA)
- Received the Rensselaer Medal, President's Award, and the 2007 Founders Award of Excellence.

PROFESSIONAL EXPERIENCE

Garmin International, Cary, NC Nov. 2014 – Present

Advanced Solutions Engineer

- Lead electrical engineer for the Impact bat swing sensor, launched October 2017.
- Played a key role in both embedded software and mobile apps development for the Impact sensor.
- Developed a four-camera stereo vision system for verification of the Impact swing algorithm.
- Investigated and developed long range radios, sonar communications, robotic systems, inertial sensing, lightning detection, stereo camera vision, and more.
- Developed code for Cypress PSoC, Atmel AVR, Kinetis, and Nordic microprocessors.
- Created various wireless interfaces using BLE, ANT+, and LORA.
- Wrote test applications using LabVIEW to aid in the development of new products.
- Prepared schematics, laid out PCBs, and assisted in mechanical designs.

John Deere Power Systems, Waterloo, IA and Cary, NC Dec. 2010 – Nov. 2014

Engine Controls Applications Engineer

- Consistently received the highest possible performance ratings every year since starting.
- Verified the design and implementation of engine controller software supplied with Yanmar Tier 4 diesel engines for use in utility tractors, commercial mowers, and construction equipment.
- Led routine international teleconferences between Yanmar and Deere electronics teams to discuss engine software implementation, testing, and delivery schedules.
- Hosted regular internal meetings with software and electrical team leads from sites in Georgia, Iowa, and North Carolina, to share knowledge and promote a common vehicle-engine interface.
- Worked closely with representatives from Yanmar America and Yanmar Japan to test and troubleshoot vehicle and engine software and electrical systems.

- Responsible for the design, development, and implementation of complex new engine control software to provide improved performance and functionality for Deere engines and controllers.
- Developed software tools in LabVIEW, MATLAB, Visual Basic, and Visual C++ .NET to support internal testing, diagnostics and engine troubleshooting using CAN and J1939.
- Created a compact new hardware tool for ultra-low-cost generation of cam and crank signals; this has allowed dozens of engineers to quickly and more thoroughly test their software before release.

RPI Center for Automation Technologies and Systems, Troy, NY Jan. 2008 – Aug. 2010
Research Assistant
- Completed construction on a complex test stand for dynamic fuel cell testing using LabVIEW.
- Developed a 6-DOF laser tracking system with demonstrated sub-millimeter accuracies.
- Implemented and developed test protocols for an automated construction system.
- Utilized a four-axis Adept robot and a six-axis Stäubli robot for sensor testing and demonstration.
- Created VAL3 robot control programs including force sensing and on-the-fly position alterations.
- Programmed Atmel AVR microcontrollers, multi-core XMOS microprocessors, and Xilinx FPGAs
- Performed patent searches, investigated competing products, prepared journal papers.

RPI Electrical Engineering Department, Troy, NY May 2009 – Dec. 2009
Teaching Assistant, Electronic Circuits
- Responsible for lab activities and the development of classroom demonstrations and presentations.
- Developed LabVIEW-based software for the RPI IO Board to be used by students.

Rensselaer Polytechnic Institute Mechatronics Lab, Troy, NY Jan. 2006 – Dec. 2007
Research & Teaching Assistant
- Responsible for design, modeling, simulation, and control of various Mechatronics systems.
- Developed and implemented control systems using LabVIEW and Atmel AVR microcontrollers.

Monsanto, St. Louis, MO May 2007 – Aug. 2007
Automation Technologies Intern
- Designed and constructed a prototype autonomous robot for transporting plants in greenhouses.
- Analyzed a land-based imaging system and recommended improvements.

PUBLICATIONS
- M. R. Kleinigger and S.J. Rock. "Application of 6-DOF Sensing for Robotic Disturbance Compensation," in the *6th Annual IEEE Conference on Automation Science and Engineering*, 2010.

PROFESSIONAL CERTIFICATIONS
- Certified LabVIEW Associate Developer (April 21, 2010)
- CompTIA A+ Certified Professional (August 13, 2003)

SOFTWARE/PROGRAMMING EXPERIENCE
- NI LabVIEW 7.1 – 2014
- MATLAB 2006a – 2014b
- Zuken CADSTAR 16
- Atmel AVR Studio 4, 5, 6, 7
- XMOS Development Environment
- AVR, MSP, Cypress microcontrollers
- SolidWorks 2005 – 2014
- Microsoft Office 2003 – 2012
- Microsoft Visual Studio .NET 2005 – 2012
- Experienced with C, C++, VB6
- Stäubli Robotics VAL3
- Familiar with Java, XC, ASM, Perl, Python

EXTACURRICULAR ACTIVITIES
- Mentored FIRST Tech Challenge (www.usfirst.org) Team 5445 while living in Waterloo, IA.
- Former member of the RPI Formula Hybrid racing team's electrical group. Designed circuit boards and assemblies for driver interface as well as battery monitoring and charge control. Began development of a custom regenerative motor controller.
- Designed and built a 150W solar-powered uninterruptible power supply for personal use.
- Programmed a home automation system using ZWave, LabVIEW, and custom hardware.
- Please see my website at www.nlvocables.com/blog/ for more details on my projects.