ELIJAH R. JENSEN
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## Education

2012 AUSTIN PEAY STATE UNIVERSITY
*Bachelor of Science in Physics, May 2012, GPA 3.9 in major, 3.8 overall*

## Academic Positions

2013 Graduate Teaching Assistant, University of Louisville

2012 Graduate Teaching Assistant, University of Vermont

2009 Peer Tutor, Austin Peay Accademic Support Center

## Research Interests

- Physics
- Electrical Engineering, Electromagnetic Theory, Electronics/Microelectronics
- Mechanical Engineering (Device Construction)
- Computational Science (Modeling of Electrical Properties)
- Materials Science

**Research Projects: Current and Planned**

2012

- Building better electronic systems for Regenerative braking in electric vehicles.
- Design of efficient, safe, and reliable Transformer-less Power supplies.
- Electric Motor controller design.
- PCB manufacturing with desktop CNC milling machines. (new computer code and processes)

2011

- Dynamo design for Regenerative braking in electric vehicles.
- Electric Car Research with FSAE team. (team leader)
- Expanding previous reproach in solar power regulation technology Fall 2011
- Solar Panel Power Regulation circuits. This uses some of the same ideas from the Regenerative systems. These systems use a complex circuit to ensure that the batteries accept charging even under low power conditions.
- Wrote programs for ATMEL micro controller
- Used micro controller to drive Robotics hardware with video processing input.

2010

- Computational modeling of Zinc Nano-wire
- Used nwchem and Guassian to model a Zinc nano-wire for possible use in photo- voltaics

**Talks**

| | |
|---|---|
| 2012 | Lithography, Double Patterning (how to make a nano trace) (UVM) |
| 2012 | Design of 80v, 19 HP motor controller for EV (TAAPT) |
| 2012 | Design of Safe and Reliable Transformerless Power Supply (TAAPT) |
| 2012 | PCB production in small fabrication lab (TAAPT) |
| 2011 | Computational Analysis of Complex AC Circuits. |
| 2011 | Computational Analysis of dynamo generator. |
| 2011 | Solar Power Power Regulator using Switching Technology |

## Honors and Awards

2011 Inducted into Pi Mu Epsilon Math Society

2010 Inducted into Phi Kappa Phi, Honorary Society

2008 Dean's List of Distinguished Students, all semesters.

2010 Recipient of three Space Grants

2011 NSF MaPs Scholarship

2010 NSF MaPs Scholarship

## Skills

Languages: C, C++, Objective C (Mac/ iOS 5), FORTRAN, Java, Python, PHP, HTML, BASIC

Programs: MATLAB, Mathematica, Minitab, Igor Pro, National Instruments Lab-View, Pro-tools, Logic, Reason, Arduino IDE, Microsoft Office, Unix/Linux, LaTeX, NwChem, Gaussian, Octave, Spice, Mac-Spice, Processing, qucs, xmgrace, HTML/CSS, PICAXE microcontroller coding software, Qt4 GUI Programming, AVR Microcontroller C programming. Final Cut Pro, Motion, Avid, Apple Software/Hardware, Design Spark PCB, Eagle CAD, OrCAD, Autodesk Inventor, AutoCAD, Google SketchUp, Pro Engineer, Roland MODELA, G code, M code, RML code. GEDA suite, AppleWorks, iWork, Gimp, MAYA, Adobe Photoshop, Blender.

Equipment: Agilent Oscilloscopes, Function Generators, Power Supplies, Multimeters. HP Oscilloscopes, Function Generators, Power Supplies, Multimeters. Breadboarding, SMD soldering, PCB production, CO2 Laser Equipment, Laser Diodes, AVR micro controllers, Physics Laboratory Equipment, LABVIEW, Vernier, Lathe (Manual and CNC), 3D printer, Milling (CNC and Manual), Ultrahigh vacuum systems, Repair of any equipment listed above.

## Service

- Tutored Physics, Math, Biology, and Chemistry from 2009 - 2012
- I play Violin, Piano, and Guitar, and have performed for many concerts and charity events.
- I have also taught music both privately and for Austin Peay.
- Performed with New England Conservatory youth orchestra in Boston from 1998- 2005.

## Affiliations

IEEE

American Physical Society

Sigma Pi Sigma