

## Tucker S. Strausbaugh

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### Education

- Elizabethtown College**, Elizabethtown, PA May 2015
- Bachelor of Science in Computer Engineering, ABET accredited
  - GPA Overall: 3.32, Major: 3.39
  - Dean's List in Fall 2013 and Spring 2015
  - 2013 Faculty Student Award in Engineering & Physics
  - Member of Sigma Pi Sigma, National Physics Honors Society
  - Member of the Order of the Engineer
- Spring Grove Area High School**, Spring Grove, PA June 2011
- GPA: 3.49
  - Advanced Placement in Chemistry and Physics B: Mechanics and E&M

### Relevant Coursework

**Computer Science I & II** (CS 121 & 122) – loops, sorting, pointers, GUI's, recursion, threads

**Physics I, II, & III** (PHY 200, 201, and 202) – calculus based mechanics, kinematics, dynamics, electricity, magnetism, waves, fluids, thermodynamics, and optics

**Calculus I, II, & III** (MA 121, 122, & 222) – differential and integral calculus (in 2D and 3D using plane, parametric, and polar coordinates), series and sequences, and multivariable calculus

**Differential Equations** (MA 321) – matrix algebra, complex plane, Laplace Transform, Fourier series and Transform

**Circuit Analysis & Electronics** (EGR 210 & 220) – linear, DC, AC, and transient analysis for circuits including resistors, capacitors, inductors, op-amps, diodes, transistors, MOSFETs

**Computer Organization and Architecture** (EGR 332) – Boolean algebra, designing sequential and combinational circuits, and studying basic requirements of computer systems

**Digital Circuits and Computer Interfacing** (EGR 333) – design of logic and integrated circuits, programming in machine language, worked with TTL chips, PLC's, FPGA's, and 8051 microcontrollers

**Signals and Systems & Control Systems** (EGR 310 & 410) – differential, Fourier, Laplace, discrete analysis; design, analysis, and simulation of control systems as well as performance analysis

**Green Robotics, Automation, and Machine Intelligence** (EGR 434) – artificial neural networks, robotic arm design, rapid adaptation to situations that can't be defined with equations, real-time control, and path-planning

**Systems Programming** (CS 222) – dynamic data structures, memory allocation, interrupts in C

**Compiler Design** (CS 421) – compilers, interpreters, code optimization, and assemblers

**Operating Systems** (CS 422) – resource allocation, interrupts, scheduling, drivers, and files

**Advanced Computer Engineering** (EGR 433) – circuit-level design and implementation of complete computer systems, lectures on microcontroller, processor, and neural network design

## Experience

RG Group

Electrical Engineering Intern and Electronics Technician

Summer 2014

- Assisted with design, calibration, production methods, and manufacturing of the TOMI SteraMist decontamination system.
- Troubleshooting legacy control systems and circuit boards in order to upgrade.
- Vaporized Hydrogen Peroxide and then applied a high voltage to the spray to transform it into a Reactive Oxygen Species. This causes cellular disruption of harmful organisms.
- Designed for sterilization use in the medical industry.

## Engineering Projects

16-Bit Computer Architecture

Spring 2014

- Designed a simple programmable 16-bit architecture and memory system.
- Fully documented in report and presented to ABET during reaccreditation.
- Later wrote an assembler to make programming much faster and simpler.

Wireless Water Quality Probe

Fall 2013 – Spring 2015

- Uses dissolved oxygen, Ph level, and temperature sensors to gather long-term data on a body of water, casing designed in SolidWorks then 3D printed.
- Uses Wi-Fi to upload data to webserver for easy data retrieval.
- Weatherproof to withstand long term environmental data.

## Skills

- Experience programming in C, C++, Java, x86 and 8051 Assembly, Mathematica, and MATLAB.
- In depth knowledge of SolidWorks, Eclipse, C, Logisim, Python, Microsoft Excel, Microsoft Word, Microsoft PowerPoint, Phoenix Contact and Siemens PLC's.
- Experience with Inventor, Spice, Ladder Logic, FPGA's, circuit prototyping, Solid Edge.
- Great time management, teamwork, leadership skills, and a hunger to learn.

## Personal Activities

- College
  - Vice President of Elizabethtown College's Robotics and Machine Intelligence Club. Constructing a competitive land robot with full image processing.
  - Mentor in the Elizabethtown Public Library S.T.E.M. Explorer's Club, an after school youth science education club. Competes in the annual SeaPerch robot competition.
  - Personal projects with Arduino and Atmel microcontrollers. Many of these led into the design of the Water Quality Probe.
- High School
  - Section and Student Leader in Spring Grove's Marching Band and Drumline
  - Member of Students Against Destructive Decisions (S.A.D.D.) for all four years.

## References

Dr. Joseph Wunderlich, Assoc. Professor and Associate Chair of Engineering  
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