

Josh Orndorff

Curriculum Vitae

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Education

- 2011–2013 **Master of Science in Physics**, *The University of Toledo*, Toledo, OH.
 - GPA: 3.6
 - Attended graduate-level physics courses, colloquia, and seminars.
 - Wrote and defended a thesis in theoretical optics and photonics.
 - Worked as a department teaching assistant (see Work Experience).
- 2006–2010 **Bachelor of Science in Physics**, *Calvin College*, Grand Rapids, MI.
 - GPA: 3.3
 - Physics Major and Mathematics Minor.
 - Assisted peers at math department helpdesk.
 - Performed undergraduate research.
- 2002–206 **High School Diploma**, *Huron High School*, Huron, OH.
 - GPA: 3.0
 - Attended Information Systems courses at Terra Technical College, Fremont, OH.

Research

- 2016 - 2018 **Student research projects**, *The Pingry School*.
- 2014 **Student research projects**, *Princeton International School of Mathematics and Science*.
- 2013 **Amplified Total Internal Reflection at the Surface of Gain Medium**, *University of Toledo*, Dr. Robert T Deck (Advisor).
MS Thesis
For decades there has been debate about whether amplified TIR from a medium exhibiting optical gain is possible, and desire for a theory to explain it. Plane wave reflectivity is found to exhibit a discontinuous jump from below unity to above as the incidence angle passes through the critical angle, confirming the existence of amplified TIR. Fourier analysis is used to show that finite beams also exhibit amplified TIR, but do not experience the surprising discontinuous jump in reflectivity at the critical angle.
- 2009 **Avoided Crossing in Normal-Mode Frequencies of a Wilberforce Pendulum**, *Calvin College*, Dr. David Van Baak (Advisor).
- 2007 **Proprietary Light Pipe Design**, *Sound Off Signal, Inc.*, Marc Zuiderveen (Supervisor).

Work Experience

- 2015 – 2018 **Teacher and Research Advisor**, *The Pingry School*, Basking Ridge, NJ.
- Taught Survey of CS, Programming, AP CS, Data Structures, a few others.
 - Created first research opportunities for students in computer science.
 - Advised research group on zero-trust distributed computing via blockchain technology.
 - Assisted in hiring the staff for a growing computer science department.
- Spring 2015 **Interim Outstation Manager**, *Evert's Air Cargo*, Bethel, AK.
- Oversaw renovation of cargo hangar.
 - Oversaw staffing, scheduling, payroll, HR, customer relationships.
 - Served as primary customer service representative.
- 2014 – 2015 **Teacher and Research Advisor**, *Princeton International School of Mathematics and Science*, Princeton, NJ.
- Designed computer science curriculum and corresponding accreditation standards.
 - Designed electronics and robotics lab.
 - Taught physics, computer science, and engineering at intro to AP level.
 - Advised students' original research in computer science and robotics.
 - Advised robotics club and student rock band (The PRISMers)
- Summers **Instructor**, *Johns Hopkins University Center for Talented Youth*, Carlisle, PA.
- 2009 – 2017
- Designed and instructed Electrical Engineering course.
 - Managed science supply orders, chose text books, and wrote course curriculum.
 - Wrote individualized student evaluations for each student.
- 2011 – 2013 **Lab Instructor**, *University of Toledo*, Toledo, OH.
- Taught undergraduate-level physics courses.
 - Taught undergraduate-level engineering courses.
 - Managed physics department help desk.
- 2010 – 2011 **Math Teacher**, *ACI Institute*, Alhambra, CA.
- Taught pre-algebra for grades five and six.
 - Taught geometry for grades nine and ten.
 - Prepared all assignments and exams for both courses.
- Spring 2010 **English (ESL) teacher**, *Guangzhou Worlda Cultural and Educational Services LTD*, Guangzhou, GD, PRC.
- Taught English classes to Chinese primary school students.
 - Prepared several lessons each week for over 1100 students.
- Summer
2008 **Optical Research Associate**, *Sound Off Signal*, Hudsonville, MI.
- Studied existing light distribution devices and patents.
 - Developed internal-reflection light pipes for use in law enforcement and rescue vehicles.
 - Developed computer models of optical systems using 3D CAD and ray-tracing software.

Coding Skills

- Languages Python***, Java***, Javascript**, C**, Haskell*, PHP*
- Tools Linux, bash, vim, GNOME3, atom, geth, L^AT_EX, ssh, gpg