

Alexander Sludds

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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)

Cambridge, MA

PhD in Electrical Engineering (Started May 2019, Expected April 2023)

M.Eng. in Electrical Engineering and Computer Science (May 2019)

B.S. in Electrical Engineering and Computer Science (May 2018)

BRUNSWICK COMMUNITY COLLEGE (BCC)

Supply, NC | June 2014

Associates Degree in Arts

Associates Degree in Science

EXPERIENCE

RESEARCH ASSISTANT

MIT RLE: DIRK ENGLUND QUANTUM PHOTONICS GROUP

July 2018 - Present | Cambridge, MA

- Published in high impact journals and conferences including Science, Physical Review X, CLEO, Photonics West and OFC.
- Led multiple silicon photonic tapeouts through a CMOS pilot line foundry (AIM photonics) incorporating designs with hundreds of active components that are used simultaneously.
- Led tapeouts through commercial 300mm silicon photonic CMOS foundries. Designed dozens of performant systems.

LIGHTMATTER INTERN

May 2022 - September 2022 | Boston, MA

RELEVANT COURSES

Graduate Applied E and M

Nonlinear Optics

Algorithms

Signal Processing

Machine Learning

Numerical Simulation

AWARDS

FELLOWSHIPS

NSF Graduate Research Fellowship (received April 2019)

PAPERS/CONFERENCES

Best Paper Award at OECC/PSC 2022 (Optoelectronics and Communications Conference)

BBC PRESIDENT'S AWARD

Awarded for Highest GPA in graduating class at Brunswick Community College

PUBLICATIONS AND CONFERENCES

PUBLICATIONS

- Delocalized Photonic Deep Learning on the Internet's Edge. A. Sludds, et al. Science 2022
- Freely scalable and reconfigurable optical hardware for deep learning. L. Bernstein*, A. Sludds*, et al. Scientific Reports (2021)
- Large-Scale Optical Neural-Networks based on Photoelectric Multiplication. R. Hamerly, L. Bernstein, A. Sludds et al. Physical Review X (2020)

CONFERENCES

- OFC 2022 Presentation: Demonstration of WDM-Enabled Ultralow-Energy Photonic Edge Computing
- SPIE Photonics West 2020 Presentation: A scalable optical neural network architecture using coherent detection
- Opening of MIT College of Computing Poster Session : Deep Learning with Coherent Nanophotonic Circuits

SKILLS

ENGINEERING

Integrated Photonic Design and Testing • Analog Circuit Design

PROGRAMMING

Python • C++ • Keras • Tensorflow • Numpy • LaTeX

LICENCES

Amateur Radio Extra Class Licence : KC1GAZ • General Radiotelephone Operator License • Marine Radio Operator Permit • GMDSS Radio Operator License • Restricted GMDSS Radio Operator License • GMDSS Radio Maintainer's License • Ship Radar Endorsement

TEACHING EXPERIENCE

MIT

Jan 2016 – December 2022 | Cambridge, MA

- Grad TA for Silicon Photonics, Fall 2022
- Grad TA for Control Theory, Spring 2019
- Grad TA for Graduate Electromagnetics (6.630), Fall 2018
- Grad TA for Electromagnetics and Applications (6.013), Spring 2018
- Instructor for Introduction to Signals and Systems, IAP 2018, 2017, 2016
- Lab Instructor for Machine Learning, Fall 2017
- Lab Instructor for Circuits and Electronics (6.002), Fall 2017
- Lab Instructor for Control Theory, Spring 2017. EdX version summer 2016
- Instructor for Introduction to Digital Electronics, Fall 2016, 2017