Polnop (Po) Samutpraphoot

3775 Flora Vista Ave, Apt 105, Santa Clara, CA 95051
polnops@alumni.harvard.edu

Work Experience

Apple., Photonics Integrated Circuits Engineer | Cupertino, CA | 07/2022-Present
• Worked in a fast-paced R&D environment, solving complex challenges in silicon systems integration to a sensing device platform.
• Developed automated testing and optimization frameworks in Python, and analysis to extract insights from high-dimensional datasets
• Led the design and characterization of advanced silicon photonic integrated circuits (PICs) for next-generation sensing applications.
• Collaborated with multidisciplinary teams, bridging photonics, software, and systems engineering.

UC Berkeley, Dept. of EECS., Postdoctoral Researcher (PI: Alp Sipahigil) | Berkeley, CA | 07/2021-06/2022
• Developed early-stage quantum photonic platforms based on on single telecom emitters in silicon photonics.
• Built cryogenic quantum optics experiments and performed quantum optics measurements to characterize single photon sources.
• Built and optimized fiber-coupling setups for photonic chips at room and cryogenic temperatures, integrating fiber packaging to solution for stability and scalability.
• Mentored junior researchers in experimental physics and quantum optics.

Harvard University, Dept. of Physics., Graduate Research Assistant (Advisor: Mikhail Lukin) | Cambridge, MA | 07/2014-05/2021
• Conducted quantum optics and atomic physics experiments integrating nanophotonics with neutral atoms in optical tweezers.
• Designed and fabricated silicon-nitride nanophotonic devices for atom-light interaction experiments.
• Optical & Microwave Control: laser stabilization and microwave driver systems for single-atom manipulation.
• Designed, assembled, and machined custom components for ultra-high vacuum and optomechanical systems
• Automated multilayered experimental sequences and performed large-scale data analysis using NumPy, SciPy, and pandas.
• Ran simulations to understand error processes and optimize fidelity in quantum control experiments.

MIT, Dept. of Physics | Undergraduate Research Assistant | Cambridge, MA
Condensed Matter Theory Group (Advisor: Leonid Levitov) | 06/2013 - 06/2014
• Theoretically investigated transport phenomena in Dirac materials using numerical simulations in MATLAB. Co-authored publications in Physical Review Letters and PNAS.
Experimental Atomic Physics Group (Advisor: Vladan Vuletic) | 06/2011 - 05/2013
• Developed and characterized narrow-linewidth extended-cavity diode lasers; publication in *Optics Express*.
• Designed and tested PID controllers for laser stabilization and low-noise amplifiers for photodetection.

Education

Harvard University, A.M. and Ph.D. in Physics, 05/2021
Massachusetts Institute of Technology, B.S. in Physics, 06/2014

Honors and Awards

Phi Beta Kappa, Sigma Pi Sigma honor societies (2014)
Pickering Award, MIT for project titled *NMR Superdense Coding with Quantum State Tomography* (2012)
Gold medal, International Physics Olympiad (2008)

Skills

Software: Python (NumPy, SciPy, pandas), git, MBP, Fusion360, Mathematica, MATLAB, machine learning, bayesian optimization
Optics & Photonics: Silicon photonic ICs, photonic quantum information processing, photonics design, electron-beam & photo-lithography, fiber coupling & packaging, laser stabilization, pulse shaping, photodetection
Hardware & Instrumentation: Low-noise electronics, PID controllers, signals and systems, RF circuits, feedback control, analog electronics, optomechanics, precision machining, ultra-high vacuum systems & cryogenics
Physics & Modeling: quantum optics, condensed matter physics