






Parthorn Ammawat

 Pasadena, CA
  pammawat@caltech.edu
  +1 (626) 993 7085
  parthorn.github.io
  LinkedIn

Education

California Institute of Technology	Sept 2022 – Expected June 2026
BS in Electrical Engineering and Applied Physics (Double Major)	GPA: 4.2/4.0


Research Experience

Painter Lab, Caltech <i>Research Assistant, supervised by Prof. Oskar Painter</i>	Pasadena, CA Apr 2024 – Present
<ul style="list-style-type: none"> Develop a Josephson junction fabrication process based on the PICT method for improved device coherence Design and fabricate an electromagnetic cat qubit as a first step toward realizing a hybrid cat qubit incorporating a mechanical quantum memory Designed, fabricated, and characterized a superconducting transmon qubit module with 300% improved quantum coherence and a 30% higher photon absorption rate for integration with a quantum transducer 	
Nonlinear Photonics Laboratory, Caltech <i>Research Assistant, supervised by Prof. Alireza Marandi</i>	Pasadena, CA Jan 2023 – Present
<ul style="list-style-type: none"> Lead the design and fabrication of on-chip coupled optical parametric oscillators to demonstrate spectral phase transitions and to serve as a foundation for developing an on-chip optical Ising machine Perform various optical characterization measurements, including fiber-chip-fiber transmission and quasi-phase-matching test Designed and fabricated various types of on-chip optical couplers using FDE, EME, and FDTD simulations for performance analysis 	

Teaching Experience

Teaching Assistant	Pasadena, CA
<ul style="list-style-type: none"> Hosted weekly office hours and recitation sessions for 20 - 150+ students Designed, graded, and wrote detailed solutions for exams and weekly problem sets 	
Methods of Applied Mathematics for the Physical Sciences (ACM 95/100b)	Apr 2025 - June 2025
<ul style="list-style-type: none"> Topics: Eigenvalue problems, transform methods, second-order PDEs, and Green's functions 	
Physics of Electrical Engineering (EE 40)	Jan 2025 - Mar 2025
<ul style="list-style-type: none"> Topics: Transmission lines, piezoelectricity, waveguides, resonators, semiconductor physics, and optoelectronic devices 	
Deterministic Analysis of Systems and Circuits (EE 44)	Sept 2024 - Dec 2024
<ul style="list-style-type: none"> Topics: Mathematical modeling of physical systems, deterministic analysis methods, and solution techniques like Laplace/Fourier transforms 	
Waves, Quantum Mechanics, and Statistical Physics (Ph 2a)	Sept 2023 - Dec 2023
<ul style="list-style-type: none"> Topics: Oscillations, waves, coupled oscillators, diffraction, Fourier analysis, and quantum mechanics 	

Awards

Henry Ford II Scholar Award (details )	2025
Nellie Bergen and Adrian Foster Tillotson Summer Undergraduate Research Fellowships	2024
Caltech Summer Undergraduate Research Fellowships (SURF)	2023
Silver Medal, International Physics Olympiad (IPhO)	2021

Relevant Courses (Graduate-Level)

Physics/Math	Complex Analysis, ODEs, and PDEs; Electromagnetic Theory for Photonics; Quantum Mechanics; Probabilistic Models; Quantum Electronics; Advanced Experimental Physics
EECS	Electromagnetic Engineering; Advanced Lasers and Photonics Lab; Advanced Digital Systems Design; Signals, Systems, and Transforms; Analog Circuit Design

Skills

Programming/Software	Python, MATLAB, Lumerical, Palace, Assembly, VHDL, Sonnet, Julia, Cadence
Technical Skills	E-beam Lithography (EBPGs), SEM, AFM, Qubit Characterization, Fiber-Chip Optical Measurements, Optical Alignment, Cryogenic Measurements
Languages	Thai (Native), English (Bilingual Proficiency)
