Erica C. Kotta

San Francisco Bay Area / email: ericakotta@gmail.com

PhD in experimental condensed matter physics with 3 years post-grad industry experience.
8 years coding experience with Python, 6 years image data analysis with MATLAB and HPC.
Fluent in English and Japanese.

TECHNICAL SKILLS

Analytical Techniques: A/B testing, *ab initio* modeling (DFT), digital image processing, Fourier analysis, stochastic modeling, Kalman filtering, machine learning (CNN, Scikit learn, XGBoost), statistical mechanics

Programming/Data Science: API development, AWS, Bash, CircleCI, cloud computing, Docker, Databricks, Datadog, Github, High Performance Computing, Object-oriented Python, MATLAB, SQL, unit testing

Physics/Engineering: Angle-resolved photoemission spectroscopy (ARPES), Cirq, LabView, Mathematica, Orbit Determination Tool Kit, OrCAD, Orekit, QuantumEspresso, Qiskit, UHV systems, Wannier90

EDUCATION

PhD from New York University [Aug 2016 - May 2022]

- Major in Physics, 3.82 GPA
- **Relevant courses:** Classical Dynamics (hydrodynamics), Computational Physics, Quantum Computing with Noisy Qubits, Quantum Field Theory, Solid State Theory, Statistical Quantum Mechanics

Bachelors from University of California, Berkeley [Aug 2009 - May 2013]

- Major in Physics, minor in Music, 3.70 GPA
- **Relevant courses:** Advanced Electronics Lab, Classical & Quantum Mechanics, Electromagnetism, Optics

WORK EXPERIENCE

Physical Scientist (I promoted II) at LeoLabs (Menlo Park, CA) [Jun 2022 – Present]

- Providing tracking data for a catalog of >20,000 satellites using Kalman filtering, high-fidelity physical modeling, and machine learning
- Developing Python, Shell scripts used company-wide for state prediction and monitoring system health
- Spearheading research projects as Tech Lead to support metrics and SLAs

Graduate Student Researcher at New York University (New York City, NY) [Aug 2016 - May 2022]

- Investigated topological insulators using angle-resolved photoemission spectroscopy (ARPES) and electronic band structure calculations (tight-binding models, density functional theory)
- Demonstrated novel ARPES experimentation paradigm to observe quantum hybridization in a topological insulator for the first time (published in Nature Physics)
- Developed Fourier image analysis techniques for ARPES image data (published in ScienceDirect)

R&D Engineer at Space Sciences Lab (Berkeley, CA) [May 2012 – May 2016]

- Developed analog circuitry systems for NASA satellite missions, such as active/passive filters, power supplies, thermoelectric coolers
- Bench tested with ESD and cleanroom (ISO 7) compliance

LINKS

- Website: ericakotta.github.io
- Profile: linkedin.com/in/erica-kotta
- Coding samples: github.com/ericakotta
- Google scholar: scholar.google.com/citations?user=M3GBHGkAAAAJ