

Matthew Chang

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Summary

- Quantitative PhD with extensive engineering experience in optical communications and silicon photonic transceivers.
- 7 years of programming experience in Python for design infrastructure, test automation, and data analysis.
- Excellent analytical, quantitative, communication, and leadership skills.
- Making a career pivot from hardware to machine learning. Learn more in this [blog post](#).

Projects

2024 NFL Big Data Bowl Winner (Kaggle)

TEAM LEADER

Feb 29, 2024

- Grand prize winner of the premiere sports data science competition from a field of over 300 teams.
- Developed and trained an XGBoost machine learning model to predict defender tackle probability using player tracking data.
- Built the data pipeline that cleaned and transformed raw player tracking data into features for model training and inference.
- Designed experiments to select input features, evaluate model architectures, and optimize hyperparameters.
- [Press Release](#) | [Podcast](#) | [Presentation](#) | [Full Report](#) | [Code](#)

Technical Skills

- Programming Languages.** Python (fluent, packages: Pytorch, Numpy, Pandas, Matplotlib, Seaborn), C++ (proficient), MATLAB.
- Machine Learning.** Transformers, Convolutional Neural Networks, Multi-layer perception, Gradient Boosting (e.g. XGBoost).
- Relevant Coursework.** Data Structures and Algorithms, Statistics and Probability, Intro to Machine Learning, Machine Learning Engineering in Production

Professional Experience

Luminous Computing Inc.

Santa Clara, CA

VICE PRESIDENT OF PHOTONICS

May 2019 - May 2023

- Recruited and lead an engineering team of 9 engineers
- Lead 3 chip design and test cycles. Delivered the first [monolithically integrated electronic/photonic 112 Gbps PAM4 transceiver](#)
- Coded a custom silicon photonic design, simulation, and tapeout software infrastructure (Python, C++)
- Coded a custom test automation framework and a device inventory and management app (Python)
- Built the testing lab from scratch, including budgeting, vendor selection, and pricing negotiation
- Owned the technical relationship with our silicon photonic foundry partners (GlobalFoundries, SilTerra)
- Single-handedly performed critical measurements on prototype chips to demonstrate key IP to help secure Series A funding

Apple Inc.

Cupertino, CA

WIRELESS DESIGN ENGINEER

2017 - 2019

- Developed hardware and software techniques to mitigate co-located radio interference in the Apple Watch Series 3 and 4
- Built and maintained python infrastructure for high-throughput, in-factory automated test
- Simulated and experimentally verified the impact of wireless interference on GPS and Bluetooth receivers

Rebeless Inc.

Princeton, NJ

CHIEF TECHNICAL OFFICER

2015-2016

- Designed photonic integrated circuits for extremely wideband analog signal processing for telecom infrastructure.
- Company IP was based on PhD research.

Education

Princeton University

Princeton, NJ

PHD IN ELECTRICAL ENGINEERING

2011 - 2017

12 first author publications | 1 textbook chapter | 5 patents

Penn State University

State College, PA

B.S. IN ELECTRICAL ENGINEERING

2007 - 2011