

# Matthew Chang

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## Summary

- Quantitative PhD with extensive research and engineering experience in semiconductor physics.
- 7 years of programming experience in Python for 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

TEAM LEADER

Feb 29, 2024

- Grand prize winner from a field of over 300 teams.
- Trained a tackle probability XGBoost model and developed the tackle opportunities concept that led to the [winning submission](#).
- Built the data pipeline responsible for cleaning and converting player tracking data into input feature vectors for model training.
- Designed experiments to downselect input features, assess various model architectures, and optimize hyperparameters.
- [Press Release](#) | [Podcast](#) | [Presentation](#) | [Full Report](#) | [Code](#)

## Technical Skills

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

## Professional Experience

### Luminous Computing Inc.

Santa Clara, CA

VICE PRESIDENT OF PHOTONICS

Sept 2021 - May 2023

- Recruited and lead an engineering team of 9 engineers.
- Lead 3 chip design 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).
- 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 and maintained python infrastructure for high-throughput test and data collection in factory for the Apple Watch Series 3 and 4
- Support new product introduction with contract manufacturers.
- Collaborated with vendors and internal teams to scope out new projects and reduce wireless interference by design.

### Rebeless Inc.

Princeton, NJ

CHIEF TECHNICAL OFFICER

2015-2016

- Designed photonic integrated circuits for extremely wideband analog signal processing in telecom applications (microwave photonics).
- Company technology and 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