Paul Shen

Machine Learning Engineer || Algorithms Software Engineer || Electrical Engineer
MS BS Stanford University, USA citizen
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Stanford electrical engineering masters alum with a love for machine learning, reinforcement learning, control systems, signal processing, opto-electronics, and data science. Looking for my next adventure!

Academics

Stanford University
MS Electrical Engineering, BS Mathematics

Indiana University School of Medicine
Former MD candidate, withdrew in good standing in 2018

Portfolio (on paulxshen.github.io)

Reinforcement learning, control systems
Differentiable Programming for Accelerated Reinforcement Learning and Optimal Control via Continuous Time Neural ODEs. Research preprint, conference submission in preparation. 2020.

Full stack software engineering, natural language processing (NLP)
Karenina IO: Multilingual Grammar & Style Correction Web App with Natural Language Processing

Opto-electronics, optics, photonics
Design of a Smartphone Raman Spectrometer. Stanford CHEMENG 345 Spectroscopy Course Project. 2014.
Characterizing a Ti:Sapphire laser in mode locked and CW operation. Stanford APPHYS 304 Lasers Laboratory Course Project. 2014.

Process engineering, mechatronics product design
Designing a self rinsing wet electrostatic precipitator for air purification. COVID passion project. 2020.

Work

Carnegie Mellon University
Machine learning research assistant. Graph convolutional networks for predicting chemical and materials properties. Remote contract starting 10/2020

Medical NLP startup
Cofounder. YCombinator ‘S19 interview finalist. 2019.

Hewlett Packard
Electrical engineering intern: RF & microwave antenna design. Received full time offer. 2012.

Stanford University
Electrical engineering and radiology research assistant: image processing, time series analysis of functional MRI data. 2010.

Languages

Native: English, Chinese
Basic: French, Spanish, Cantonese

Skills

(* denotes basic working knowledge)
Machine learning, signal processing, control systems, scientific computing
• Machine learning: DNN, CNN, RNN, neural ODE, transformers, Julia Flux, *TensorFlow, *PyTorch
• Reinforcement learning: policy gradients, differentiable programming, deep Q, Markov processes
• Control systems: optimal control, MPC, dynamical systems, PID, state estimation, Kalman filter, optimization
• Signal processing: image processing, DSP, communications theory, Fourier analysis, wavelets, sensor fusion, time series ARIMA, MRI/CT reconstruction
• Natural language processing: deep embeddings, Spacy, USE, GPT-2, AWS Comprehend, Azure Text Analytics

Full stack software engineering, web development, data science
• Python (Numpy, Pandas, Flask, *Django), Javascript (Node JS, *Vue), C++, HTML/CSS, Julia, Matlab
• NoSQL (Google Firebase), SQL, Stripe integration

• Devops: GCP, *AWS, *Docker, *Kubernetes
• Statistics: regressions & hypothesis testing, stochastic processes, general linear models, *mixed effect models

Medical sciences and biotech
• Completed 2.5 years of MD program including basic sciences and half of core clinical rotations, passed Step 1 Boards
• Coursework: gross anatomy, pathology, epidemiology, pharmacology, genetics
• Clinical rotations: pediatrics, family medicine, psychiatry, neurology, anesthesia

Electronics and electromagnetics
• Basic PCB design, power electronics, mixed signals, embedded systems
• Antennas, RF/microwave systems, electromagnetics simulation

Photonics
• Design of imaging, camera, and laser systems
• Fourier optics, quantum mechanics
• Spectroscopy systems design: IR, Vis, Raman, laser scattering, remote sensing

Chemical engineering, process engineering • Reactor design: photoreactors, electrostatic precipitators, wet scrubbers
• Coursework in fluid dynamics, heat transfer, solid mechanics, thermodynamics, microfluidics
• Coursework in physical chemistry, biochemistry, organic chemistry, statistical mechanics

Mechatronics and product design
• Plastics design for injection molding, silicone design, *sheet metal design
• Enclosure design for consumer electronics and industrial instrumentation
• Industrial design and formgiving
• CAD: Solidworks, *Fusion 360