Contact

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www.linkedin.com/in/joecole889 (LinkedIn)
github.com/joecole889/hello-world.git (Other)

Top Skills

Optics and chemistry laboratory experience
Matlab
Labview

Certifications

Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
Convolutional Neural Networks
Using Databases with Python
Machine Learning
Using Python to Access Web Data

Honors-Awards

Graduate Student Researcher Program Fellowship
Earned B.S. degree in 2.5 years.
Eagle Scout Rank
F.S. Cater Prize in Mathematical Sciences

Publications

Photothermal efficiency of nanoshells and nanorods for clinical therapeutic applications
Optimized plasmonic nanoparticle distributions for solar spectrum harvesting
Fluorescence Enhancement by Au Nanostructures: Nanoshells and Nanorods

Joseph Cole

Building robots for disassembly of lithium ion batteries and data center decommissioning.
Portland, Oregon, United States

Summary

An image processing/applied physics professional with expertise in machine learning.

Experience

Rose City Robotics
Co-founder and Chief Executive Officer
February 2024 - Present (2 years)
Portland, Oregon, United States

https://rosecityrobotics.com

YorLabs
Staff Engineer - Ultrasound
March 2021 - January 2024 (2 years 11 months)
Portland, Oregon, United States

- Lead developer responsible for software architecture of a new cardiac ultrasound machine
based on the Nvidia Jetson ARM system-on-module
- Developed beamforming and image processing algorithms to implement B, color doppler,
and pulse wave doppler ultrasound modes
- Performed system integration of work products from experts on image quality, front-end user
interface, and FPGA/hardware
- Defined user requirements including frame rate and pipeline latency, and ensured the
system architecture could perform as expected
- Demonstrated system performance both in lab and during two animal trials which led to
successful closing of Series B and C investment rounds

Koioc Incorporated
Cofounder and Chief Technology Officer

July 2019 - March 2021 (1 year 9 months)
Portland, OR

Koioc builds eDiscovery tools for small law firms and solo practitioners so they can search their documents as easily as they search the internet.

United States Army Reserve

Major (Retired)

1997 - September 2019 (22 years)
Portland, Oregon Area

- Direct supervisor responsible for the health, welfare and morale of twelve soldiers
- Provide oversight and coordination of all communications and IT needs of an Expeditionary Brigade (~400 Soldiers)
- Provide subject matter expertise on radio, satellite, and network infrastructure matters to the commander
- Maintain accountability for over $100,000 of automation and signal equipment including PC's, HF/VHF radios (JTRS, SINGARS), GPS devices (PLGR, DAGR), and encryption devices (ANCD)
- Previously served as Adjunct Professor of Military Science at University of Portland
- Previously served as shift leader for mobilization operation center at Ft. Sill, OK
- Provided logistical support for the mobilization of over 3,000 soldiers for Operations Enduring Freedom and Iraqi Freedom

Applied Materials

Senior Algorithm Developer

March 2012 - February 2017 (5 years)
Portland, Oregon Area

- Designed algorithms in Matlab for the UVision and SEMVision platforms
- microscopes for wafer inspection and defect review of semiconductor manufacturing process steps
- Analyzed algorithmic gaps at customer site to focus R&D efforts, earning Employee of the Quarter award (Q3, 2012)
- Built customer relationships through daily interactions to stimulate future tool sales
- Improved software quality by testing early prototype versions of new algorithm features (e.g. subframe registration, 3D height measurements, process noise filters, etc.) on customer data

- Designed edge segmentation algorithm for a new product line (Discrete Measurement Server)
- Designed image enhancement backlight algorithm on a short loop to secure $6M in SEMVision tool sales

CGGVeritas
Staff Seismic Imager
October 2009 - July 2011 (1 year 10 months)

- Employed Harpertown, Nehalem, and Westmere supercomputing clusters to generate 3D subsurface images
- Optimized job parameters for efficient execution on clusters
- Applied wave propagation theory and signal processing techniques to remove noise from seismic data
- Managed disk resources as project disk manager for multi-terabyte sized seismic datasets
- Delivered presentations and authored reports for weekly customer meetings
- Edited technical articles for publication in Geophysics and The Leading Edge

Automated Creation Technologies
Partner
2007 - 2008 (1 year)

- Founded company for the purpose of manufacturing open source 3D printers based on a freeform fabrication concept
- Finalist at U.T. Tyler's New Venture Business Plan competition
- Produced revenues of $15,000 in the first year

Rice University
Graduate Research Assistant
2002 - 2008 (6 years)

- Tool owner of Ar+ laser, 815 nm diode laser, monochromators, rotary evaporator, UV-vis spectrometer, bath sonicators, FT-IR spectrometer, and all Labview controlled equipment
- Designed, machined, and constructed experimental apparatuses using optical components, electronics, and high vacuum equipment
- Fabricated ceramic and metallic nanoparticles using wet chemistry methods including distillation, centrifugation, sonication, rotary evaporation, and electroless metal plating
- Deposited thin films using sputtering and in a class 100 clean room using e-beam evaporation

- Characterized nanoparticles and organic molecules using UV-vis spectroscopy, scanning electron microscopy, atomic force microscopy, FT-IR spectroscopy, Raman spectroscopy, nuclear magnetic resonance, x-ray diffraction, dark field microscopy, and chromatography
- Modeled nanoparticle electromagnetic and thermal responses using the COMSOL finite element differential equation solver on a Xeon based cluster
- Trained and supervised research activities of undergraduates and new graduate students

Northrop Grumman Corporation
Associate Engineer
February 2001 - July 2002 (1 year 6 months)
Azusa, California

- Designed missile state vector prediction algorithms for National Missile Defense infrared satellites
- Triangulated ballistic missile parameters in simulation using least squares estimation
- Wrote software in Perl and Matlab to automate simulation process

Applied Research Labs
Senior Student Associate
January 2000 - December 2000 (1 year)

- Performed experiments to test sonar array performance by setting up underwater objects and recording sonar datasets from various directions
- Modeled wideband signal beamformer for a linear sonar array
- Documented Matlab code and experimental results
- Improved sonar images using signal processing techniques

Education

Portland State University
Graduate Certificate, Applied Statistics · (2016 - 2020)

Rice University
Ph.D., Applied Physics · (2006 - 2008)

Rice University
M.S., Applied Physics · (2002 - 2006)

The University of Texas at Austin

B.S., Electrical and Computer Engineering · (1998 - 2000)