

Saul Kohn, PhD

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Patented expert in machine learning, generative AI, NLP and computer vision. US and UK work clearance.

EXPERIENCE

AI & ML Manager, *SmileDirectClub*, Boston MA

June 2021 - Present

- Lead ML engineering efforts on the *Smile Maker Platform*, delivering ML-powered augmented-reality to ~30k users/month. Boosted sales and led to a total restructure of company objectives.
- Managed the machine learning side of the product, working with UX, Legal, Sales, and the C-Suite.
- Led a team of 3 ML and 2 software engineers in interdisciplinary projects and multiple product launches, including the use of generative AI and retrieval-augmented generation language models.
- Interviewed and hired iOS engineers, a backend engineer, and a UX designer to build-out our team.
- Built a complete augmented reality iOS app from scratch to collect ML training data. It recorded and tracked the position of 100s of facial coordinates in video recordings.
- Trained extremely performant and lightweight models to detect user head position, facial features, and estimate the camera position in real-time video streams.
- Led all IP work for the AI Team, resulting in many filed and granted patents.

Senior Research Scientist, *Proscia, Inc.*, Philadelphia PA

August 2019 - June 2021

- Implemented, developed, trained and analyzed Tensorflow models for detection and localization of skin, colon and prostate cancer in gigapixel images. Several patent filings submitted.
- Led the development of neural networks that detected melanoma with state-of-the-art accuracy.
- Created a neural network that performed data quality control, removing artifacts such as pen ink and air bubbles from microscope slide images. It was spun into a flagship company product.
- Assisted in obtaining a CE mark for the company's *Concentriq* slide image software.
- Mentored junior team members, supervising research projects and SDK development.

Data Scientist, *The Vanguard Group*, Malvern PA

August 2018 - August 2019

- Launched the first chatbot at Vanguard, on the highest-traffic page ("Buy/Sell") of their website.
- Powered the chatbot with an early use of question-answering language models.
- Assisted in the transformation of the 1000+-staff call center by building graph-based machine learning models that predicted why a client was calling based on their recent web activity.
- Parsed millions of emails with Python and Hive into a queryable SQL database.

Fellow, *Insight Data Science*, New York NY

June 2018 - August 2018

- Created a Python-based chatbot, combining named entity recognition and topic modeling to generate concise text summaries of chat threads, delivered instantly to the user.
- Integrated the tool using Flask, the Slack Javascript API, and AWS Lambda.

PhD Researcher, *University of Pennsylvania*, Philadelphia PA

August 2014 - May 2018

- Developed an open source Python library to map the atmosphere worldwide using GPS beacons.
- Implemented a pipeline in SQL, Python and Bash to compress and analyze over 100TB of images, parallelized over a cluster of storage and compute nodes.
- Developed digital signal processing packages to perform state estimation of telescope electronics.
- Author or co-author of many academic papers, with over 2,000 total citations (h index = 24).
- Competed in hackathons, winning prizes including "Most Promising" and "Best Blockchain" App.

EDUCATION

PhD in Physics & Astronomy, University of Pennsylvania, Philadelphia PA 2014 - 2018

MPhys with Honors in Astrophysics, University of Edinburgh, Edinburgh UK 2009 - 2014

SKILLS

Languages: Python, Swift, SQL, Bash | *Some Familiarity:* Javascript, Kotlin, OpenGL, Golang, C, Solidity
Scientific Tools: numpy, scikit-learn, PyTorch, Tensorflow, ONNX, pandas, openCV, MLFlow, LaTeX
Development Techniques: Git, CI/CD, unit testing, AWS, Docker, DVC/CML, Blender, Figma, Poetry