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Company page

Joel Shor

AI for healthcare & drug discovery

Google scholar
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Experience

Founder, Move37 Labs (current employment) 2025-present

AI consulting for tech bio, medtech

- Designing DNA/RNA sequences with desired properties, published in ICML GenBio 2025 [paper, with Google, MIT]
- Leveraging ***genomic foundation models*** to classify oceanic eDNA [with New Atlantis]
- Developing ***AI agents*** to effortlessly develop secure healthcare apps [with Quome]
- Identifying cardiac abnormalities during pregnancy using ambulatory doppler ultrasound [with HeartSounds]
- Harmonizing biological datasets for research and industry using ***probabilistic programming*** [with ProbComp]
- Advising multiple drug-discovery companies including BioDavinci and Exonic Bio

Vice President and Head of Machine Learning, Deep Genomics 2024-2025

AI for discovering and designing RNA therapeutics. **Led ML science and ML engineering teams (12 people total)**

Machine learning research

- Led team to research and develop new AI models for predicting RNA biology, generating therapeutic interventions
- Developed foundation models for RNA expression and microRNA binding sites, among others

Machine learning engineering

- Led team to improve the reliability, scalability, and reproducibility of our ML platform
- Oversaw deployment of Google's ML hardware [blog]

Engineering lead for medical speech, Verily 2022-2024

AI for healthcare, medical speech, gastroenterology

Large language models (LLMs) for mental health

- Using LLMs and prompt tuning to better understand the mental health condition of patients
- Published pilot study reducing health anxiety for patients with chronic conditions in JMIR

DeepConsensus sequence transformers for PacBio Circular Consensus Sequencing data

- Applied ML techniques for 5x speedup for the v0.3.0 open release of DeepConsensus. Published at NeurIPS.

Custom compression for medical videos, Verily, Tech lead

- Published novel video compression algorithms for medical compression at NeurIPS and medical journal

Speech interfaces for medical devices, Verily, Eng lead

- Developed speech interface for physicians to control medical devices and annotate procedures.
- Published novel algorithm at ACL Clinical NLP workshop and in United European Gastroenterology week.

Automatic polyp detection and classification, Verily

- Developed techniques and features to improve colonoscopies. Launching products globally.
- Manage the partnership with Japan data providers and clinicians

Engineering lead for AI for Japan team, Google Japan 2020-2021

AI for Social Good, COVID-19 forecasting medical audio, fake audio detection. **Recruited and led teams of up to 20 people.**

Covid19 forecasting, Project Founder Tokyo, 2020-2021

- Launched a 28-day Covid19 public forecast for Japan. Used by top government policymakers to shape Japan's Covid response. Seen by millions of people worldwide. Published in npj Digital Medicine [paper, blog post].
- **Recruited and led a 15-person cross-functional team** including research, PR, business development
- Work won VLED Award for enhancing public good with Big Data, received "*Feats of Engineering*" award from Google Cloud, and I was recognized with a "*Citizen Awards: Collaboration Category*" for collaboration
- "Visiting Researcher" at Japan's top-ranked research university, Keio University, in the school of Medicine

Patient testimonials to reduce hospital anxiety, AI for Social Good Japan Tokyo, 2020-2021

- Study with Japan's Kitasato University Hospital to use patient testimonial videos to reduce hospital visit anxiety for Inflammatory Bowel Disease patients, in partnership with Dipex Japan. Published in JMIR.

Paralinguistic speech representations, AI for Social Good Japan Tokyo, 2021

- State-of-the-art paralinguistic representations, applied to better understanding emotion, user intent, and medically-impacted speakers [papers 1, 2, 3, 4] in ICASSP, Interspeech, and IEEE Signal Processing

Founder of audio biomarkers team, Google Israel 2018-2020

Speech accessibility, medical speech, representation learning research. **Led team of 6 to launch internationally.**

Speech recognition and voice imitation, Founder & Tech lead, Audio biomarkers Tel Aviv, 2018-2019

- Started project Euphonia, giving patients who lost their voice back the ability to speak with their original voice.
- Announced at Google I/O 2018 [blog post, paper, Google I/O video, documentary video] and mentioned in Google's 2018 "*Letter to the Founders*"

On-device speech representations, Tech lead, Audio biomarkers, Senior Software Engineer Tel Aviv, 2019-2020

- Created a novel representation for non-semantic speech [blog post, Interspeech papers 1, 2, code, models]
- 3 patents and many applications including fake audio detection (patent), cough detection (patent), and disordered speech detection [paper]. Many external academic and start-up collaborators

ML Researcher, Google 2014-2018

TensorFlow GAN infrastructure, Technical lead Mountain View, 2017-present

- Started TensorFlow GAN, an open-source library for easily training and evaluating Generative Adversarial Networks [github, blog posts 1, 2, patent, public lecture]
- 4M downloads; papers using TF-GAN have thousands of citations; 170K students took TF-GAN course in 2020

Research engineer, Text-to-speech Mountain View, 2017-2018

- Improved audio quality and prosody in state-of-the-art text-to-speech systems [blog post, ICML papers 1, 2, 3]

Research Engineer, Image and video compression Mountain View, 2016-2017

- Improved image compression using neural networks [blog post, CVPR and ICIP papers 1, 2, 3, 4, patents 1, 2]

Engineer, YouTube Search indexing and search infrastructure Mountain View, 2014-2016

- Maintained and developed the indexing and serving systems that power search on YouTube

Software engineer, Baarzo Palo Alto, 2014

Targeted video search

- Developed computer vision algorithms for a video search product. Acquired by Google

Senior Thesis, The Lewis-Sigler Institute for Integrative Genomics, Princeton, NJ 2013-2014

Computational neuroscience research exploring spatial reasoning of rats in virtual reality

- Developed a machine-learned classifier to determine when the rat switched tasks. Outperformed previous work.

Awards Achievements

- Google Scholar: Papers in npj Digital Medicine, NeurIPS, CVPR, ICML, ICIP, Interspeech, ICASSP. 12 patents.
- Sole recipient of Princeton's Manfred Pyka Memorial Prize for outstanding work in physics
- Won Japan's VLED Award for enhancing public good with Big Data (Covid19 forecasting project)
- Won Google's 2021 APAC Partnership Solutions "Citizenship: Collaboration" award
- Won Google's 2021 "Feat of Engineering" award for Covid19 forecasting model

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Invited talks

- (2022-04) Tech talk at Boston University's Math & Statistics department
- (2022-04) Tech talk at Boston University's Mathematical Association of America
- (2022-04) Tech talk at MIT's Department of Electrical Engineering & Computer Science course 6.345/HST.728
- (2022-03) Tech Talk at Boston University (link)
- (2022-02) Co-presenter at the 4th Conference of the Japan Society of Colon Examination in Hokkaido [poster]
- (2022-02) National Institute of Informations (NII), Japan
- (2021-12) MIT CSAIL's Spoken Language Systems Group

Publicity

- Blog posts
  - TRILLsson: Small, Universal Speech Representations for Paralinguistic Tasks
  - An ML-Based Framework for COVID-19 Epidemiology
  - FRILL: On-Device Speech Representations using TensorFlow-Lite
  - Project Euphonia's Personalized Speech Recognition for Non-Standard Speech
  - Improving Speech Representations and Personalized Models Using Self-Supervision
  - Introducing TF-GAN: A lightweight GAN library for TensorFlow 2.0
  - TFGAN: A Lightweight Library for Generative Adversarial Networks
  - AI discovers the heartbeat in your face

- Tech interviews / videos
  - Gaza Sky Geeks: How I got into Google
  - Joel Shor - Really Quick Questions with an Awesome Google Engineer
  - Welcome to Introduction to GANs [full course, lecture]

Education

Princeton University, A.B Mathematics 2014