






Arsh Zahed

Machine Learning Engineer

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Objective: $\max \mathbb{E} [\| \text{Experience} \|^2 + \| \text{Knowledge} \|^2]$
Optimization Method: Full-Time Engineer/Researcher

EXPERIENCE



TIKTOK | RESEARCH ENGINEER

Speech Audio Music Intelligence | April '22 - Current

- Led research on zero-shot voice beautification, attribute conversion, and voice feature disentanglement.
- Built experimentation pipeline for training 4 large voice models with data processing on 6 datasets, 2 languages, and 40k speakers.
- Developed voice design pipeline with zero-shot voice conversion, including age, gender, and speaker interpolation.



NVIDIA | DEEP LEARNING ENGINEER

AI Applications | July '20 - Feb '22

- Deployed Riva model conversion tool to optimize models with Triton, ONNX and TensorRT. Supports 15 pipelines, and accelerates by >12x.
- Designed and built TAO-LM, tool for training/tuning N-Gram models, used by over 100 industry customers.



BERKELEY AI RESEARCH | RESEARCHER & GRADER

AutoLab | Jan '19 - Jan '20

- Research in Reinforcement, Imitation and Online Learning.
- Reduced failure of safety using uncertainty estimation by 14%.



GOOGLE | SOFTWARE ENGINEER INTERN

Chrome Media Audio | May '18 - Aug '18

- Created TF Estimators experimentation framework to predict the speech coding quality of WaveNet/Lyra while reducing bitrate by 50%.
- Collected 7000 user-rated WaveNet samples. Ran experiments with RNNs, Dilated Convolutions and Variational Autoencoders.



LAUNCHPAD | PRESIDENT & PROJECT LEAD

UC Berkeley Student Org | Jan '17 - May '20

- Led ML workshops and meetings for 40+ members, maintained relations with 3 sponsors, and led 16 developers on 2 projects.

PUBLICATIONS

"On-Policy Imitation Learning from an Improving Supervisor"

- Conference on Robot Learning (CORL), 2019
- Real World Sequential Decision Making Workshop at ICML, 2019.

PROJECTS

UNCERTAINTY AWARE PHYSICS ESTIMATION Python, PyTorch | 2021

- Used uncertainty estimation to create an active learning framework for physics estimation. Achieved a >50% decrease in required data.

EXPRESSIVE TTS FROM INFERRED EMBEDDINGS Python, PyTorch | 2020

- Inferred style-embeddings from text to improve generated speech.
- Improved F0 Frame Error by 8% with audible improvement.

METAL - MAML EXPLORATION WITH METRICS Python, TensorFlow | 2019

- Developed Policy Metrics that help guide task-specific exploration.
- Used with imitation learning for 22% reduction in training speed.

SKILLS

TOPICS & FIELDS

Deep Learning • Generative AI • Speech Processing • Computational Music • Natural Language Processing • Digital Signal Processing • Generative Models • Reinforcement Learning

PROGRAMMING

Python • C • C++ • JavaScript • R • Java • Protobuf • Bash • LaTeX

LIBRARIES & TOOLS

PyTorch • TensorFlow • Triton • AWS • GCP • Docker • Kubernetes

EDUCATION



STANFORD UNIVERSITY

NON-DEGREE | SEP '21 - PRESENT
Computer Science



UC BERKELEY

B.S. | AUG '16 - MAY '20
Electrical Engineering & Computer Science

COURSEWORK

STANFORD

CS 224n Natural Language Processing
CS 236 Deep Generative Models

UC BERKELEY

CS 194-26 Quantum Computing
CS 191 Computational Photography
CS 189 Machine Learning
CS 188 Artificial Intelligence
CS 170 Algorithms
CS 162 Operating Systems
CS 161 Computer Security
EE 225b Digital Image Processing
EE 127 Convex Optimization
EE 126 Probability Theory
EE 123 Discrete Signal Processing
EE 120 Signals & Systems
EE 106a Robotics
Math 141 Differential Topology
Math 110 Linear Algebra
Math 104 Real Analysis
Music 108 Music Cognition
Stat 154 Stochastic Processes
Stat 153 Time Series Analysis