



ALEX KASHI

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Summary

Accomplished **Staff Software Engineer** and **Machine Learning Researcher** with **10 years of experience** in software development and machine learning. Demonstrated expertise through work at **top universities, startups, and in published research**. Skilled in leading **mobile app development** and creating **machine learning models**, with a strong track record of enhancing user experience and performance. Proficient in **managing multidisciplinary teams** and aligning technology with business goals. Visit alexkashi.com for more details.

Education

Harvard University

M.S. Computational Science and Engineering

GPA: 3.9

Cambridge, MA

University of California Berkeley

B.S. Electrical Engineering and Computer Sciences

High Honors (Top 10%) - GPA: 3.9

Berkeley, CA

Relevant Coursework

- Computer Vision
- Reinforcement Learning
- Visual Navigation (SLAM)
- Performance Computing
- Machine Learning
- Operating Systems
- Artificial Intelligence
- Internet Architecture
- Computer Security
- Efficient Algorithms
- Feedback Control
- Robotic Manipulation

Experience

Lucid Motors

Staff Software Engineer | Swift, Python

May 2022 – Present

Newark, CA

- Led the development of the **next-generation native mobile app**, introducing previously unachievable features and enhanced performance, **completed ahead of schedule**, and raised the App Store rating by **0.2 points**.
- Designed a **passive entry system** using **Bluetooth and location APIs**, enhancing reliability and user convenience.
- Integrated an **interactive 3D model**, elevating aesthetics and identified as the **most liked new feature** by customers.
- **Reported directly** to the **Senior VP of Digital** to align development with strategic initiatives.

Dubbles.ai

Co-Founder CTO | Python, PyTorch, Swift, Javascript, Next.js

December 2023 – Present

Sunnyvale, CA

- Developed and launched an **AI-powered text-to-video app** that generates short videos of target celebrities with accurate **lip and voice synthesis**.
- Led a **cross-functional team** through design and deployment, resulting in **high user engagement** and **viral growth**.

Harvard Medical School

Machine Learning Research Scientist | Python, PyTorch

May 2023 – Aug 2023

Cambridge, MA

- Adapted protein structure **prediction models** for RNA, achieving a **state-of-the-art F1 score** of 0.52 (up from 0.47).
- Curated a diverse database of **over 300,000 RNA secondary structures**, enhancing the model training dataset.
- Developed **synthetic data training algorithms**, significantly **reducing the generalization gap** between RNA types.

Spur

Founder CEO/CTO | Swift, Kotlin, GraphQL, Javascript, Lambda, DynamoDB, Elasticsearch

Jan 2019 – Dec 2022

Sunnyvale, CA

- Founded and developed a **native social media app** for iOS and Android, reaching over **350,000 downloads**.
- Admitted into the **Harvard Innovation Labs Venture Program** and selected for the semester-long **Harvard Business School accelerator** course, Field X.
- Crafted and executed a comprehensive **go-to-market strategy, pitch deck, and business plan**, which were presented to **angel investors and venture capitalists** to secure **pre-seed funding**.
- Engineered a **microservice-based backend** utilizing AWS technologies including **DynamoDB, Elasticsearch, S3, Lambda, EC2, Kinesis, and Rekognition**.
- Established a complete **DevOps pipeline** for streamlined deployment, analytics, logging and operational management.
- Directed a multidisciplinary **team of over five professionals**, in **marketing, competitive analysis, and design**.

Stanford

Sep 2017 – Sep 2021

Research Associate | Python, TensorFlow

Stanford, CA

- Developed the **first** classifier for Myalgic Encephalomyelitis (ME), results published in *PNAS*.
- Engineered **hardware and software** in C for an impedance measurement device, **cutting costs by 98%**.
- Authored the **statistical theory** on the **metabolic origin of ME**, published in *Diagnostics*.
- Led a team on **cell semantic segmentation**, **cutting computation time by 94%** and **boosting accuracy by 2%**.
- **Supervised** computer vision and machine learning **interns**, supported by the **Stanford Bio-X program**.

Intel

May 2017 – Sep 2017

Software Engineer | C, C++

Santa Clara, CA

- Enhanced **I2C and UART drivers**, extending support to **touch screens and cameras**.
- Developed **firmware for x86 R&D devices**, implemented additional features, and configured new peripherals.

Zspace

May 2016 – Aug 2016

Computer Vision Research Intern | Python

Sunnyvale, CA

- Developed a **gaze tracking system** using **deep learning and computer vision**, achieving **95% accuracy**.
- Curated dataset, trained model, and developed **real-time API**, launching on schedule **without additional hardware**.

Intel

May 2015 – Aug 2015

Software Engineering Intern - Client R&D | Java, Android

Santa Clara, CA

- Developed a **MapReduce framework** for **big data** processing on **Android**, using **C/C++** for parallelization.
- Applied it by implementing **k-means clustering** for local data preprocessing before server transmission.

Mux Wiring

May 2014 – May 2015 and Sep 2015 – Apr 2016

Software Engineer | Python

Campbell, CA

- Developed an interpreter for a Raspberry Pi alternative, translating human-readable code into machine-level instructions.
- Automated hardware testing to verify that both the hardware and interpreter met performance benchmarks.

Projects

Microsoft Capstone: Socioeconomic Future of Kenya | Python, PyTorch

December 2022

- Analyzed **Kenya's socioeconomic indicators** using **Bayesian models**, covering fertility rates, education, GDP by sector, and gross county product.
- Presented an interactive **dashboard** to **Microsoft** on population and industrialization trends, aiding strategic decisions.

Compressing and Accelerating Stable Diffusion | Python, PyTorch

December 2022

- Accelerated **Stable Diffusion**, achieving an **80% memory reduction** and a **4x speed increase** through **mixed-precision quantization** and **Flash Attention** maintained **image quality**.

Uncertainty Quantification in Question-Answering Models | Python, PyTorch

December 2022

- **Analyzed uncertainty quantification methods** (MC-Dropout, Deep Ensembles, SNGP) on ALBERT and DistilBERT for SQuAD v2.0 in **span-extractive question answering**.

Design Choices for Dual-arm Robotic Manipulator Control | Python

December 2022

- Developed **control strategies** for dual-arm **robotic manipulation** using KUKA IIWA robots, implementing **separate and unified controllers** and **collision avoidance** in complex tasks.

Evaluation of Optimal Decision Making in High-risk Environments | Python, PyTorch

May 2022

- Investigated the effectiveness of **Q-Learning** and **Fitted Q Iteration**, and **analyzed the impact of data collection policies** on model performance.

Dogegan: An End-to-end Solution for Generating NFTs | Python, PyTorch

May 2022

- Developed a **GAN pipeline** to generate **NFT artwork**, utilizing **CLIP** to guide **image generation with input text**.

Planetary Impact Simulator | C++

May 2022

- Developed using **Smoothed-particle hydrodynamics** and the Barnes-Hut algorithm, achieving a **12x speedup** on **32 cores** with OpenMP and Eigen for simulations involving over **10 million particles**.

AlphaHoldem: An Efficient Poker Agent Using RL | C++ May 2022

- Implemented **PPO** and **DQN** in a poker environment, **outperforming** Monte Carlo-based equity agents, and **demonstrated PPO's superior performance** by consistently learning to defeat DQN and equity agents.

Visual-Inertial Odometry on the MIT Racecars | C++, ROS Dec 2021

- Implemented **Visual-Inertial Odometry (VIO)** on the MIT Racecar using an IMU, depth camera, and LiDAR.
- Utilized **GPU acceleration** to enable **real-time SLAM**, **loop closure detection**, and **voxel mesh creation** simultaneously on a resource-constrained embedded Nvidia platform.
- Validated VIO system against OptiTrack, **achieving precise path estimation and waypoint following**.

Low-cost Reliable Localization of Drone | Python, ROS May 2015

- Developed an **indoor package delivery drone** with a custom-built **quadcopter controlled via ROS**.
- Created a **low-cost motion capture system** using redundant AR tags and **RANSAC**, and **path planning**.

Technical Skills

Programming Languages: Python, Swift, Java, Kotlin, C++, C, JavaScript

Databases: PostgreSQL, DynamoDB, Elasticsearch, SQLite

Networking/Communication Protocols: REST, GraphQL, gRPC

Developer Tools: Git, Docker, JIRA, Postman, Figma

Technologies/Frameworks: PyTorch, TensorFlow, SwiftUI, AWS, React, Next.js, Vercel, Supabase, Linux, ROS

Spoken Languages: Native English Speaker, Conversational in Spanish

Publications

Diverse Database and Machine Learning Model for RNA Structure Prediction Harvard - 2024

de Lajarte, A. A., Martin des Taillades, Y. J., Kalicki, C., Fuchs Wightman, F., Aruda, J., Salazar, D., Allan, M. F., L'Esperance-Kerckhoff, C., **Kashi, A.**, Jossinet, F., & Rouskin, S. (2024). Diverse database and machine learning model to narrow the generalization gap in RNA structure prediction. *bioRxiv*

A nanoelectronics-blood-based diagnostic biomarker for (ME/CFS) Stanford - 2019

Esfandypour, R., **Kashi, A.**, Nemat-Gorgani, M., Wilhelmy, J., & Davis, R. W. (2019). A nanoelectronics-blood-based diagnostic biomarker for myalgic encephalomyelitis/ chronic fatigue syndrome (ME/CFS). *Proceedings of the National Academy of Sciences*

The IDO Metabolic Trap Hypothesis for the Etiology of ME/CFS Stanford - 2019

Kashi, A. A., Davis, R. W., & Phair, R. D. (2019). The IDO Metabolic Trap Hypothesis for the Etiology of ME/CFS. *Diagnostics*

Affiliations / Awards

Nexus Hackathon 3rd Place Lucid Motors

Eta Kappa Nu IEEE Honor Society Member UC Berkeley

Valedictorian Fremont High School

Academic All American USA Water Polo