David Ban

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SUMMARY

Machine learning researcher and software engineer with published work in audio-visual AI and 2+ years data engineering experience. Proficient in building scalable data pipelines and implementing deep learning models that drive innovation and efficiency.

EDUCATION

Masters in Computer Science, Part-time (GPA: 4.0) **Atlanta, GA, USA**
Georgia Institute of Technology 08/2024 - Present

- Relevant Coursework: Artificial Intelligence, Game AI, Analytical Modeling

Bachelor of Arts in Computer Science (GPA: 3.84) **Berkeley, CA, USA**
University of California, Berkeley 08/2020 - 05/2024

- **Relevant Coursework**: Efficient Algorithms, Operating Systems, Artificial Intelligence, Data Structures, Discrete Math and Probability, Computer Architecture, Algorithms for Computational Biology, Sound and Music Computing

RELEVANT EXPERIENCE

Data Analyst, Houlihan Lokey **June 2024 - Present**

- Analyzed and presented personnel data to C-suite executives regarding retention, engagement, and performance
- Engineered data pipelines and ETL workflows to support data integration for Houlihan Lokey's new generative-AI driven banking platform
- Developed PostgreSQL-backed REST APIs handling 10K+ daily queries with sub-200ms latency

Machine Learning Researcher, Center for New Music and Audio Technologies **July 2023 - January 2025**

- Pioneered the use of Generative AI for sound visualization and music-to-image generation through audio-conditioned diffusion models in Python
- Applied layer-wise feature injections in Stable Diffusion U-Net architecture to generate audio-responsive output
- Published and presented findings at the DAFx International Conference and the Journal of the Audio Engineering Society

Full Stack Intern, Enable Medicine (Startup) **June 2022 - August 2022**

- Developed pipeline integrations for AI cell visualizations and data indexing
- Conducted data and image analysis of cell annotations and screenings to assist training and validation of AI models
- Designed front-end applications using Node and AWS for customizable analysis of microscope-derived cellular data

Machine Learning Researcher, Computational Biology Dept of University of Pittsburgh **January 2018 - July 2020**

- Created unsupervised spatial transformer neural networks to model protein-ligand binding in both Caffe and PyTorch
- Achieved a >90% reduction in model loss on a 16K+ compound dataset
- Presented research findings at multiple science fairs and national symposiums

PROJECTS

AI Voice Translator **May 2023 - May 2024**

- Implemented a python based generative AI-powered voice conversion system for a website, enabling users to transform their voices in real-time for use in calling applications such as Discord
- Created a user-friendly interface and integrated the voice conversion functionality seamlessly into the website
- Optimized the website's performance, scalability, and compatibility with various calling apps

PintOS: A simple operating system **September 2022 - December 2022**

- Constructed a complete operating system from the ground up using C, implementing essential components such as process management, memory management, and file system functionalities
- Designed and optimized data structures and algorithms to efficiently handle system resources to improve scalability of the operating system
- Conducted rigorous testing and debugging to ensure the stability and reliability of the operating system

Campus Involvement

- Berkeley Math Tournament Lead Organizer, Dance Games at Berkeley Founding Officer, Historical Fencing at Berkeley Officer

SKILLS

- **Computer Languages:** Python, HTML/CSS, SQL, Java, JavaScript, Node.js, Typescript, C, C++, Bash, Git, LaTeX
- **Tools:** Pandas, NumPy, SQL, PyTorch, TensorFlow, Scikit-learn, RESTful API, Git, Bash, Pytest
- **Languages:** English, Chinese (Mandarin), French

Certificates

- **NVIDIA:** Fundamentals of Deep Learning, Applications of AI for Anomaly Detection, Building AI-Based Cybersecurity Pipelines