

Prashant Krishnan Vaidyanathan

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Education

University of California San Diego

San Diego, CA

M.S. in Computer Science and Engineering | GPA: 3.97

Sept 2021 - June 2023

- **Courses:** Algorithms, ML Data Systems, Advanced NLP, Recommender Systems, Programming Languages, Operating Systems, Adv. Text Mining
- **Graduate Student Researcher, Prof. Jingbo Shang:** Developed a robust framework for few-shot entity recognition for document images using multimodal BERT-like large language models and graph neural networks. [\[Paper\]](#) [\[Code\]](#)

Ramaiah Institute of Technology

Bangalore, India

B.E. in Computer Science and Engineering | GPA: 9.4/10

Aug 2015 - June 2019

Work Experience

Williot Inc.

San Diego, CA

Senior Data Scientist

June 2024 - Present

- Developed end-to-end custom machine learning pipelines of XGBoost models optimizing workflows for the largest retailers in the US
- Engineered an automated data labeling tool using weak supervision, enabling scalability & reducing manual costs by 5x approximately
- Utilized MLFlow for training, tracking, & logging ML experiments, including hyperparameter tuning resulting in efficient, reproducible workflows.

Data Scientist

Aug 2023 - June 2024

- Facilitated the migration of the ML pipeline from batch to streaming processing reducing latency by ~ 50% and ensuring stability at scale
- Enhanced feature engineering strategy enabling near real-time predictions resulting in an improved model with latency reduced by 35%
- Refactored and modularized data labelling, preprocessing and analysis reducing processing time by 60% ensuring a streamlined workflow

Apple Inc.

Austin, TX

Data Scientist Intern, Ad Platforms Data Insights

June 2022 - Sep 2022

- Built time series clustering models using dynamic time warping analyzing budget utilization of Search Ads apps on the App Store
- Created a scalable end-to-end pipeline for EDA, feature engineering and modeling for the top apps contributing to over ~ \$4B annually

Indian Institute of Science

Bangalore, India

Research Engineer, LEAP Lab (Prof. Sriram Ganapathy)

Feb 2019 - June 2021

- Developed an end-to-end siamese neural network for backend modeling in speaker verification (~ 25% improvement) [\[Code\]](#)
- Built a diagnostic tool for COVID-19 using ML techniques on respiratory sounds with results matching rapid tests [\[Website\]](#)
- Developed the Coswara website and managed the database of respiratory sounds of 2500+ users (~ 50GB) [\[Dataset\]](#)
- Organized the DiCOVA Challenge at Interspeech 2021. Built baselines, managed leaderboard for 80+ teams worldwide [\[Website\]](#)
- Led the collection of a multilingual multi-accent speaker profiling dataset with 300+ speakers and 6+ languages [\[Paper\]](#)[\[Dataset\]](#)

Publications (Selected)

- **P. Krishnan**, Z. Wang, Y. Wang, J. Shang, 'Towards Few-shot Entity Recognition in Document Images: A Graph Neural Network Approach Robust to Image Manipulation', LREC-COLING, 2024 [\[Paper\]](#) [\[Code\]](#).
- S. Ramoji, , **P. Krishnan**, and S. Ganapathy, "PLDA inspired Siamese Networks for Speaker Verification", Journal of Computer Speech & Language , Vol. 76, Nov 2022 p.101383. [\[Paper\]](#)[\[Code\]](#)
- N. Sharma, **P. Krishnan**, R. Kumar, S. Ramoji, S. R. Chetupalli, R. Nirmala, P. K. Ghosh, S. Ganapathy, "Coswara: A Database of Breathing, Cough, and Voice Sounds for COVID-19 Diagnosis", Interspeech 2020, Beijing. [\[Paper\]](#)
- S. Ramoji, **P. Krishnan**, S. Ganapathy, "Neural PLDA Modeling for End-to-End Speaker Verification", Interspeech 2020. [\[Paper\]](#)

Projects

- **Document to Image Generation** - Leveraged text mining techniques & large language models (LLMs) to generate images of long text documents such as poems and articles using Stable Diffusion and evaluated using OpenAI's CLIP score [\[Code\]](#)
- **Local RAG - Chat with your database:** Developed a local Retrieval-Augmented Generation (RAG) app, using LLMs such as Llama-3 & Mistral for queries about your PDFs, allowing database updates and using Streamlit for an intuitive UI [\[Code\]](#)
- **PDF Question Answer Chatbot** - Developed an interactive terminal application using LangChain and OpenAI's GPT APIs to extract embeddings from PDF documents, enabling users to retrieve information through natural language queries [\[Code\]](#)
- **Music Generation using Deep Learning Techniques** - Evaluated LSTMs and GANs for music generation using piano MIDI files. Used the Music21 library to parse these files to generate training embeddings [\[Code\]](#)
- **Codenames-Haskell** - Developed a terminal UI app of the party game 'Codenames' in Haskell using the brick library. Implemented a client-server view for the dynamic game states, integrated error handling and game logs [\[Code\]](#)
- **Vaccine Notifier** - Web-app that emails you updates regarding availability of COVID vaccine slots in your area [\[Code\]](#)

Skills

Programming Python, C, C++, R, HTML, JavaScript, TypeScript, Node.js, SQL, Git, Shell, Haskell

Tools/Frameworks PyTorch, PySpark, Tensorflow, Git, Databricks, Docker, AWS, GCP, Hugging Face, scikit-learn, Kubernetes