

Ajay Kannan

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EDUCATION

Master of Science in Computer Science, Arizona State University, Tempe. [GPA: 3.83/4.0]

Jan 2021 – May 2023

Bachelor of Science in Computer Science, Anna University, Chennai. [GPA: 8.14/10]

Aug 2014 – May 2019

WORK EXPERIENCE

Software Engineer at Pacific Gas & Electric, Santa Clara, CA

July 2023 – Till date

- Implemented an **Electric Productivity Tracker (EPT)** to increase data processing velocity by **20%** and reduce errors by **15%** in utility data management and analysis while consulting for TCS.
- Developed automated testing framework for **ArcGIS Webmaps** using Python and REST API, reducing testing time by **50%**.
- Implemented an automated **Health Check** system for the **Load balancer** of the **EPT Server and databases**, streamlining progress tracking of maps and features to enhance quality assurance and operational efficiency.
- Streamlined project management with Jira and created ArcGIS Dashboards to improve UI/UX and system integration.

Graduate Research Assistant at Arizona State University, Tempe, AZ

August 2022 – May 2023

- Developed contrastive loss for **Few Shot Learning** in TCR-Epitope affinity prediction, improving **accuracy by 30%**.
- Implemented a Siamese network to gauge the efficiency of different K-values in few-shot learning.

Data Scientist at Sigtuple, Bangaluru, India

July 2021 - Dec 2021

- Applied image processing techniques to biological data, utilizing Siamese Networks, GANs, Neural Style Transfer.
- Utilized alpha blending to recreate histology slide images, accurately representing biological particles and membranes.
- Achieved a **94% accuracy** of enhancement in image blending efficiency through innovative generative architectures.

Software Engineer at Microsoft, Hyderabad, India

Summer, 2017 & 2018

- Identified key sensor data patterns and trends to significantly enhance crop yields through data processing and visualization using Python, ML, REST API and PyTorch. Incorporated a heat-map generation system for sensor values, called **FarmBeats**, leveraging GIS.
- Led the **Shopping on Cortana** project, integrating Cortana with a shopping platform to improve user experience. Handled back-end development with Cassandra DB and C#, as a part of the Foundry Team in MS-IDC.

Research Assistant at Solarillion Foundation, Chennai, India

Oct 2016 – Dec 2018

- Designed and developed a **Static Gesture Recognition Glove** for American Sign Language with **94-96% efficiency** using accelerometer sensors and Arduino. Implemented distance metrics to improve gesture recognition accuracy.
- Created a **Generic Dynamic Gesture Recognition system**, as a follow up for the static system, achieving **97% efficiency** with ML and public datasets. Used Extra Trees, Random Forest, Ridge Classifier etc.
- Led IoT research group, managing R&D projects and mentoring junior researchers as teaching assistant.

PUBLICATIONS & ACHIEVEMENTS

- Presented a poster in **Few Shot Learning for TCR-Epitope Binding Affinity Prediction** for the MORE symposium at ASU.
- A. Kannan, A. Ramesh, L. Srinivasan and V. Vijayaraghavan, "**Low-cost static gesture recognition system using MEMS accelerometers,**" 2017 Global Internet of Things Summit (GIOTS), Geneva, Switzerland, 2017, pp. 1-6, doi: 10.1109/GIOTS.2017.8016217.
- Gudur, Gautham Krishna et al. "**A Generic Multi-modal Dynamic Gesture Recognition System using Machine Learning.**" ArXiv abs/1809.05839 (2018): n. pag.

SKILLS

- Programming Languages:** Python, Java, C++, C#, JavaScript, SQL, Postgres, Arduino, HTML/CSS, Spark, Node.js
- Machine Learning/Deep Learning:** PyTorch, Huggingface, Langchain, TensorFlow, Keras, NumPy, Scikit-learn, Pandas
- Databases:** MySQL, MongoDB, Cassandra
- Cloud technologies/web services:** AWS, Docker, Kubernetes, REST, Git, Azure
- Others:** Predictive modeling, ML & DL algorithms, Big Data, Decision Analytics, Problem solving, Exploratory Data Analysis

PROJECTS

- Interactive Banking Chatbot:** Piloted a GPT-based banking chatbot using Large Language Models and LangChain, ensuring contextually relevant and engaging dialogue. Implemented advanced natural language processing techniques to handle diverse user queries efficiently. Designed a seamless user interface for intuitive interaction and enhanced user experience.
- Twitter Data Analysis:** Deployed ANN and Support Vector Regression for context-aware data retrieval with 98% efficiency, collaborating on a group project. Developed and integrated a web app front end, enhancing data accessibility and user interaction. Implemented real-time data streaming to ensure up-to-date analysis.
- Salary Classification Analysis:** Conducted exploratory data analysis on Census data for salary classification. Applied advanced statistical techniques and data visualization, improving classification accuracy by **25%**. Developed a predictive model to identify key factors influencing salary distribution.

CERTIFICATIONS

- Machine Learning & AI**, Coursera - Tensorflow for AI, NN & DL, CNN, Structuring ML Projects, Improving DNN