Pavan Kumar Raja

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Portfolio:pavan-pk.github.io

Seasoned software engineer in building products consumed by millions of users, currently pursuing an MS in computer science with a specialization in Artificial Intelligence at Arizona State University. Curiosity-driven, self-starter, adept at learning new technologies and driving projects from conception to delivery. Passionate about AI and software engineering, seeking full-time opportunities to build and contribute to experiences that have a positive impact.

Education

Master of Science in Computer Science. *GPA - 4/4* *Graduating Dec 2022*
Arizona State University. *Tempe, Arizona*

- Coursework: Foundations of algorithms, Statistical Machine Learning, Deep learning, Natural language processing (NLP), Artificial Intelligence (search, planning and learning), Knowledge representation and reasoning in AI, Data Visualization, Robot learning in human-robot collaboration.

Bachelor of Engineering in Electronics and Communications. *GPA - 8.43/10* *Jun 2016*
R V College of Engineering (Affiliated to VTU). *Bangalore, India*

Skills

Languages: Python, C++, JavaScript, Clingo, PDDL.
Frameworks and technical skills: PyTorch, PySpark, ReactJS, Deep learning, Natural Language Processing, Motion planning, Learning models in AI, Planning with human in loop, Ros.
MMOC: Deep Learning A-ZTM: Hands-On Artificial Neural Networks (*certificate*), Deep Learning Specialization (*certificate*), *Natural Language Processing specialization (certificate)*

Experience

Software Engineer - Individual Contributor *Aug 2020 – Jul 2021*
Motorola Mobility, Team: Motorola Digital Account. *Bangalore, India*

- Drove and implemented endpoint encryption for 3-way web communication (client, server, partner).
- Prototyped quick pay using camera and gesture for MDA application.
- Built a security library on android for secured log storage and biometric authentication.
- Cross-geo collaboration.

Software Engineer *Jan 2018 – Jul 2020*
Motorola Mobility, Team: Cloud Services. *Bangalore, India*

- Automated critical software updates by leveraging Motorola's context awareness ML engine resulting in 98% security update uptake.
- Led update generation architecture redesign and development, moved to object-oriented parallel processing architecture including support for multiple vendors and saving 30% in computational resources on build servers.
- Brought up virtual A/B updates on Motorola Android devices, reducing memory footprint by 40% and pushing OS uptake rate to 90%
- Built a suite of python scripts to analyze update layouts to aid in product design.

Associate Software Engineer *Jul 2016 – Dec 2017*
Motorola Mobility, Team: Update Services *Bangalore, India*

- Brought up seamless software update architecture into Motorola update devices reducing return device margin by 90% and increased OS update rate from 70% to 90%.
- Investigated and implemented package size reduction techniques to reduce cloud storage by 20%.

Graduate teaching assistant - Deep Learning in Computer Vision *Feb 2021 – Present*
Arizona State University, School of Augmented Intelligence *Tempe, AZ*

- Took classes and organized office hours to discuss the lectures and assignments.
- Graded programming assignments, projects, and exams.

Projects

github.com/Pavan-pk | pavan-pk.github.io

AI algorithms
Spring 2022

Arizona State University Tempe, AZ

- Developed projects to get hands-on experience in developing AI algorithms such as search, planning, and reinforcement learning for policy generation problems based on reasoning and rewards. The project uses a ros-melodic framework and gazebo simulation environment to evaluate algorithms for bookWorld and cafeWorld environments.

Instruction Paradigm - An alternative to crowdsourcing
Fall 2021

Arizona State University Tempe, AZ

- Experimented prompt engineering on SOTA NLP models (GPT3 and T0_pp) to validate their capability to generate GLUE datasets (QQP and MNLI), and evaluate results on an NLP pipeline built using SentenceBERT.

RealismArtGan
Fall 2021

Arizona State University Tempe, AZ

- Built a CycleGAN architecture to translate real-life images to realism art style images and vice-versa and evaluated results using likeness score (LS) to gauge Creativity, Inheritance, and Diversity of generative network

Celeb Tweet Emotion Similarity Analysis
Summer 2022

Arizona State University Tempe, AZ

- Experimented on Twitter Dataset of Top 20 most followed users in the Twitter social platform to extract personality overlap of each twitter handle based on their history of tweets. Utilized SentenceBert for generating tweet embedding and then UMAP for reducing the dimension of the embeddings, and HDBSCAN for clustering the embeddings. Finally, Visualized using Gephi.

Secure Health System
Spring 2022

Arizona State University Tempe, AZ

- A large-scale web application built to experiment with security-related concepts was introduced in CSE 545. It includes many web-related security topics, endpoint data encryption, a Secure chatbot built on ideas from sentenceBert, and BlockChain implementation for securing transaction data and patient records. I had added responsibility to lead this group(size of 8) project.

Awards and recognition

MBG Bravo! Award
Motorola Mobility

Organizational level individual recognition award, for my contributions in Virtual A/B updates. Aug 2020

Motorola Team Excellence Award
Motorola Mobility

Recognition for design and implementation of seamless updates and 5G mod OTA. 2018 - 2019