Pavan Kumar Raja

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Portfolio:pavan-pk.github.io

I am a seasoned software engineer with extensive experience in building products used by millions of users. Currently, I am an SDE-II at AWS in Seattle. Driven by curiosity and a self-starter mentality, I excel at learning new technologies and engineering projects from conception to delivery. I hold an MS with a specialization in AI and am passionate about the applications of AI in planning, policy generation, and automation. I am seeking opportunities to leverage my skills and passion to build and contribute to experiences that have a positive impact.

Education

Master of Science in Computer Science. *GPA - 3.9/4* *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* *01/07/2016*
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, LangChain.

Experience

SDE I/II - *AWS* *02/2022 – present, Seattle, WA*

- Led design and development Planning Advisor (Crystal AI), a 1P Generative AI based conversational assistant that will be primarily available in all SMGS Ops Sales Planning tools SPOG as a pluggable UI to address policy related questions, domain knowledge and planning tools applications specific insights.
- Designed and developed Sales Hierarchy (SH) rule based user permissions to provide consistent permissions across the entire planning tools portfolio.
- Automated Near Real-time revenue aggregations flow to the Revenue Management System.
- Key contributor in building Crystal - a centralized platform for reviewing revenue information at the territory, customer, and account levels, with contributions across fullstack along with Implementation of ETL to bring in account, territory and customer level revenue data.
- Implemented data sourcing ETL and processing for Sell-To and Sell-Through revenue assignments.
- Built AWS revenue exception override logic in revenue aggregator rules to resolve conflicts between overlap of annual and current year planning.

Graduate teaching assistant - *ASU, School of Augmented Intelligence* *02/2022 – 12/2022, Tempe, AZ*
Deep learning for Computer Vision, Software Security

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

Senior Software Engineer - *Motorola Mobility* *01/2018 – 07/2021, Bengaluru, IN*

- Implemented endpoint encryption for secure 3-way web communication.
- Prototyped a quick pay feature using camera and gestures, and developed a security library to secure biometric authentication info.
- Automated software updates with Motorola's ML engine, achieving 98% security update uptake.
- Introduced virtual A/B updates on Moto devices, reducing memory usage by 40% and boosting OS update uptake from 70% to 90%.

Software Engineer - *Motorola Mobility* *07/2016 – 12/2017, Bengaluru, IN*

- Brought up seamless software update architecture into Motorola update devices reducing return device margin.

- Redesigned update generation architecture with parallel processing, saving 30% in computational resources and developed Python based scripts to analyze update layouts for product design improvement.

Projects

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

Visual analysis of cloud computing performance using behavioral lines. *Fall 2022*
Arizona State University Tempe, AZ
- Built a Visual Analysis web tool to analyze cloud computing cluster's system performance.

Visual heuristic based RRT algorithm for path finding problems. *(AI)* *Fall 2022*
Arizona State University Tempe, AZ
- Improve RRT algorithm with visual aid as heuristics.

Task planning in PDDL *(AI)* *Fall 2022*
Arizona State University Tempe, AZ
- Described and generated plans for AI planning/scheduling problems ranging from simple toggle switch domain to complex logistics with durative actions and delivery deadline in PDDL. (used PDDL 2.0 and PDDL 2.1)

Planning models 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.

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.

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.

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

Awards and recognition

MBG Bravo! Award Motorola Mobility
Organizational level individual recognition award, for my contributions in Virtual A/B updates. 01/08/2020

Motorola Team Excellence Award Motorola Mobility
Recognition for design and implementation of seamless updates and 5G mod OTA. 2018 - 2019