PAVAN KUMAR RAJA

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Summary

Seasoned computer scientist with 5 years of experience in building software solutions that supports millions of users daily. Curiosity-driven, self-motivated, and adept at driving projects from conception to implementation. Seeking to leverage my experience and my graduate coursework in building large scale AI systems.

Education

Arizona State University Tempe, AZ

Master of Science in Computer science. GPA – 3.94/4.0 *Anticipated graduation Dec 2022*

- Coursework: Foundations of algorithms, Natural language processing (NLP), Deep learning, Artificial Intelligence, Knowledge representation and reasoning in AI.

R V College of Engineering (Affiliated to VTU) Bangalore, India

Bachelor of Engineering in Electronics and Communications. GPA – 8.43/10 *July 2016*

Skills

Languages: Python, C++, Java, JavaScript, Clingo.

Frameworks and technical skills: PyTorch, reactJS, Android, Git, deep learning, Natural Language Processing.

Professional Experience

Software Engineer - Motorola Digital Account (MDA) August 2020 – July 2021

Motorola Mobility LLC *Bangalore, India*

- Secured web communication for MDA involving prototyping, architecture design according to OWASP standards, and multiple review sessions to eliminate risk across thousands of transactions.
- Designed instant payment methods for MDA (scan and gesture) involved prototyping, third-party verification, and development.
- Built a secure storage library on the android system to securely save logs, application metrics, and credentials reducing the risk of Privacy information leak during logs/metric upload and enabling biometric login.
- Responsible for reviewing code of other developments and applications in reactJs and Android to aid other areas of MDA to support rapid experimentation and development.

Software Engineer - Over-The-Air updates January 2018 – July 2020

Motorola Mobility LLC *Bangalore, India*

- Brought up virtual A/B updates on Motorola Android devices, reducing memory footprint by 40% and increased software update uptake rate by significant margin.
- Built suite of python scripts to extract prerequisites, analyze update mechanisms, and monitor software update state in virtual A/B devices, increasing efficiency of system architecture design process for new products.
- Led update generation architecture design and development, moved to object-oriented parallel processing architecture including support for multiple vendors and saving 30% in computational resources on build servers.
- Automated critical software update for Verizon carrier by leveraging Motorola's context awareness ML engine and pushing security update rate to 98% on Verizon devices.

Associate Software Engineer July 2016 – December 2017

Motorola Mobility LLC *Bangalore, India*

- Brought up seamless software update architecture into Motorola update devices and reduced return device margin by 90% and increased OS update rate from 70% to 90%
- Investigated latest advancements in compression techniques and integrated them into difference generator, resulting in package size reduction by 20% and cloud storage costs for each update by a significant margin.
- Contributed to bringing up block-based updates on UFS devices allowing Motorola android devices to have plasticity in partition layouts

Academics

Teaching Assistant - *CSE 598: Intro to Deep Learning in Visual Computing* Feb 2022 - Present
Arizona State University, MCS (Session B) *Tempe, AZ*

- Organising Office-hours twice a week for giving overview of weeks teachings and addressing any queries.
- Grading quizzes,programming assignments and course projects.

Academic projects Aug 2021 – Present
Arizona State University - github.com/Pavan-pk *Tempe, AZ*

- **Instruction Paradigm - An alternative to crowd sourcing:** Experimented prompt engineering on SOTA NLP models (GPT3 and T0_pp) to validate their capability to generate GLUE datasets (QQP and MNLI), and evaluated results on an NLP pipeline built using SentenceBERT.
- **RealismArtGan:** Experimented with 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.
- **AI algorithms:** Projects to get hands-on experience in developing AI algorithms such as search, planning, and reinforcement learning for scheduling problems based on reasoning and rewards. This project uses a ros-melodic framework and gazebo simulation environment and was built to evaluate algorithms for bookWorld and cafeWorld environments.
- **Secure Health System:** 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:** Experimented on Twitter Dataset of Top 20 most followed users in Twitter social platform to extract personality overlap of each twitter handle based on their history of tweets. Used SentenceBert for generating tweet embedding and then using UMAP for reducing the dimension of the embeddings, and HDBSCAN for clustering the embeddings. Finally, Visualized using Gephi.

Awards and recognition

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

MBG Bravo! Award Motorola Mobility LLC
Organisational level individual recognition award, for my contributions in Virtual A/B updates. *August 2020*