Prem Kumar Amanchi

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Education

- **Arizona State University** — Tempe, AZ, U.S.A
  Master of Computer Science — Expected December 2023
  Cumulative GPA: 3.89
- **Amrita Vishwa Vidhyapeetham, Coimbatore** — Coimbatore, Tamilnadu, India
  Bachelor of Technology in Electronics and Communication — July 2017 – June 2021
  Cumulative GPA: 8.11

Skills

Programming Languages: Java, Python, JavaScript, C++, C, MATLAB.
Web development: HTML, CSS, React.js, jQuery, Node.js, Express.js, Flask, Django
Deep Learning: Tensorflow, PyTorch, Keras, Sklearn, OpenCV, Jax, Haiku, CUDA
DataBase, Tools and Frameworks: MySQL, PostgreSQL, MongoDB, Android, TensorFlow, AWS, GitHub, Jira.

Experience

All Test Maker Company — Bangalore, Karnataka, India
Software Engineer Intern — Mar 2021 - July 2021

- Developed back-end REST APIs using Node.js, following Agile Software Development Life Cycle methodologies.
- Customized assessment modules for better monitoring and analysis of full-screen exits and question duration.
- Optimized backend API performance by up to 20% through the implementation of query indexing and batch processing of CRUD operations, leading to a more efficient system.
- Developed a testing platform using React.js, successfully addressing subscription and question bank bugs and contributing to a significant 80% increase in revenue.

Technical Projects

AWS Solution Architect - Scalable and Secure WordPress Website Hosting — May. 2023 – July 2023

- Designed and implemented a scalable and secure AWS infrastructure for hosting a WordPress website, leveraging services such as EC2, RDS, S3, ELB, CloudFront, IAM, WAF, and CloudWatch.
- Ensured high availability and optimal performance by utilizing multi-Availability Zone setup, load balancing, content delivery network (CDN), security measures, and proactive monitoring.

Empowering Students through Immersive Game-Based Education — Jan. 2023 – May 2023

- Enhanced student learning experience by performing data mining on sequential game log datasets, extracting patterns, and utilizing statistical measures to predict a curated pool of questions.
- Utilized proven ML algorithms (KNN, logistic regression) to achieve an F1 score of 0.71 across 18 questions, while employing advanced sequential models (LSTM, Transformer) that yielded improved scores nearing 0.73.

Off-Loading Machine Learning on Simulated Mobile Edge Computing — Aug 2022 – Dec 2022

- Developed an Android app in Java for transferring and processing handwritten digit images between slave mobiles using image portioning, storage, and conversion to grayscale.
- Crafted and trained a Deep Learning network on MNIST dataset with TensorFlow achieving 98.72% accuracy and integrated the TFLite model with the Android app for efficient labeling.

Hospital Management System — Jan 2022 – May 2022

- Created a web application utilizing the Django framework in Python to manage hospital operations, enabling role-based access control for multiple users.
- Enhanced security measures such as Captcha, Google Authenticator, OTP, and integrated SSL to safeguard sensitive data and critical operations from cyber threats.

Compression-complexity measures for analysis and classification of Coronaviruses — June 2020 – June 2021

- Led the effective categorization of 5000+ novel genomic sequences into their relevant families for pandemic research by utilizing compression complexity measures as a key feature.
- Implemented Lempel-Ziv & Effort-to-Compress complexity in MATLAB to carry out phylogenetic analyses and leveraged 4 Machine Learning algorithms to classify COVID-19 sequences with a remarkable 92% accuracy.

Publications

Lead Author, Entropy Journal, MDPI — Dec. 2022

- Munagala, N.V.T.S.; Amanchi, P.K.; Balasubramanian, K.; Panicker, A.; Nagaraj, N. "Compression-Complexity Measures for Analysis and Classification of Coronaviruses." Entropy, 25(2023), 81. doi:10.3390/e25010081