Keshav Shivkumar

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PROFESSIONAL EXPERIENCE

Teaching Assistant, Rutgers University **January 2023 - Present**

- TA for CS-170 (Computer Applications for Business) which involves teaching computer concepts in HTML, CSS, JavaScript, pseudocode, MS Excel, and databases and for CS-210 (Data Management for Data Science), which includes teaching Python concepts in libraries like pandas, matplotlib, NumPy, and SQL concepts including working with CSV, JSON, NoSQL, etc.

Software Engineer Intern, Bloom Energy **September 2021 – March 2022**

- Developed a real-time monitoring system for manufactured fuel cell maintenance using ReactJS to engineer a dynamic front-end dashboard that displayed live data streams and Flask to serve as the back-end framework to handle API integration and monitor cell performance metrics for authorized users.
- Transitioned the monitoring web application to be hosted on an AWS EC2 instance, leveraging cloud scalability and reliability to accommodate the growing influx of data. Designed a MariaDB database hosted on AWS RDS to meticulously store historical test data, ensuring comprehensive tracking of fuel cell performance over time.
- Implemented data ingestion routines using pre-existing APIs to retrieve real-time fuel cell metrics such as electrical output, fuel utilization rate, system efficiency, emission levels into a status table UI.
- Integrated Jenkins and GitLab CI/CD pipelines to automate the deployment process and facilitate continuous delivery of application updates and new features onto EC2.

EDUCATION

- **Master of Science (MS), Computer Science, 2024 | Rutgers University, New Brunswick, NJ, USA**
  CGPA: 3.9/4.0

TECHNICAL PROFICIENCIES

Programming Languages:	Python, Java, C++, R
Web Development & Frameworks:	HTML, CSS, JavaScript, Node.js, Django, React.js, Flask, JSP
Data Science & Machine Learning:	Pandas, Matplotlib, PyTorch, NumPy, SQL
Additional Skills:	Git, Linux, AWS, Agile and Scrum Methodologies, CI/CD Practices

PROJECTS

- **RUEats** [Technologies used: HTML, CSS, JavaScript, Node.js, SQL]
  Spearheaded the full-cycle development of RUEats, a comprehensive food delivery application, architecting RESTful Node.js APIs for restaurant registration and management and enabling users to explore, order, and review eateries, supported by a meticulously structured SQL database, hosted on an AWS RDS instance to ensure optimal performance and scalability.
- **Shopfinity** [Technologies used: Java, MySQL, JSP, JDBC, HTML, CSS, JavaScript]
  Developed Shopfinity, a sophisticated Java-based vehicle auction platform, incorporating seamless JSP, HTML, and CSS integration and meticulously designed a robust database schema and ER diagrams for MySQL, enabling a dynamic user experience with real-time bidding and automated auction functionalities, all deployed on an Apache Tomcat server.
- **ViLT: Vision and Language Transformer** [Technologies used: Python (PyTorch)]
  Enhanced the Vision-and-Language Transformer (ViLT) model by fine-tuning its existing architecture involving precise hyperparameter adjustments and the strategic application of cutting-edge algorithms, achieving a substantial 3% boost in accuracy on the challenging GQA dataset, elevating the model's performance in complex vision-and-language tasks.
- **Better, Smarter, Faster:** [Technologies used: Python (NumPy)]
  Designed and implemented probabilistic decision-making models in Python, applying object-oriented design to simulate intelligent agent behaviors within a circular graph framework, using Bayesian inference, Markov decision processes, and neural networks to manage strategic interactions under uncertainty, progressively improving the success rate to 100%.
- **Cloud-Based Skin Cancer Detection Application** [Technologies used: Java, Python (TensorFlow, Keras), AWS]
  Created a DenseNet CNN model trained using AWS SageMaker on the HAM10000 dataset stored on AWS S3 that classifies images of skin lesions with a 92% accuracy and deploys it to AWS using API Gateway, with an Android application interface to allow users to upload a skin lesion image. Published a research paper at an IEEE conference for the same.