Keshav Shivkumar

MSCS Student at Rutgers

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EDUCATION

- **Master of Science (MS), Computer Science, 2024 | Rutgers University, New Brunswick, NJ, USA**
  CGPA: 3.85/4.00
  Relevant Coursework: Introduction to AI, Mathematical Foundations of Math Science, Machine Learning I, Machine Learning II, Computer Vision, Database Systems for Data Science, Database Management Systems, Software Engineering I

TECHNICAL PROFICIENCIES

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

PROFESSIONAL EXPERIENCE

Teaching Assistant, Rutgers University, Piscataway, New Jersey   **January 2023 - Present**
- TA for CS-170, Computer Applications for Business, which involved teaching students basic concepts in HTML, CSS, JavaScript, pseudocode, MS Excel, and databases.
- TA for CS-210, Data Management for Data Science, which includes teaching students Python concepts including important Python libraries like pandas, matplotlib, numpy, and SQL concepts including working with CSV, JSON, NoSQL, etc.

Software Engineer Intern , Bloom Energy, Bangalore, Karnataka   **September 2021 – March 2022**
- Worked on the Development & DevOps team to develop a Joomla and Flask-based single-page web application(SPA) for Bloom Energy's manufacturing portal, improving testing efficiency by 80% in a fast-paced Agile Scrum environment.
- Implemented a Jenkins CI/CD pipeline integrated with GitLab, enabling dynamic test case selection and execution from the web interface, and the automation of test cases written in Selenium Java to assist continuous integration.
- Designed a proof-of-concept to trigger the Jenkins pipeline to run the selected test cases on the SPA by creating bash scripts that execute the Jenkins pipeline when a change is pushed to Gitlab.
- Engineered a custom Joomla module, functioning as a front-end display for the categorized test cases. The module served as an API to facilitate dynamic interaction between the web interface and underlying test scripts.

PROJECTS

- **RUEats** [Technologies used: HTML, CSS, JavaScript, NodeJS, SQL]
  Spearheaded the end-to-end development of a food delivery application, emulating a professional software engineering team's workflow. Initiated with a comprehensive project blueprint and architectural diagrams, progressed to backend deployment on AWS, API development, and culminated in frontend design.
- **ViLT: Vision-and-Language Transformer** [Technologies used: Python (PyTorch, OpenCV)]
  Independently adapted the ICML 2021 conference paper concept, ViLT, a streamlined Vision-and-Language Pre-training model, for enhanced visual reasoning on a novel dataset (GQA), and refined this convolution-free, Transformer-based architecture, demonstrating its potential in complex vision-and-language tasks.
- **Shopfinity** [Technologies used: Java, MySQL, JSP, JDBC, HTML, CSS, JavaScript]
  Engineered a dynamic vehicle auctioning web application leveraging Java and MySQL. This platform enables users to create and manage vehicle listings, engage in bidding with an innovative automatic bidding system, and facilitates user interaction through a dedicated forum for inquiries and discussions.
- **Circle of Life/Better, Smarter, Faster** [Technologies used: Python]
  Developed sophisticated probabilistic models, including implementations of Breadth-First Search (BFS), Dijkstra's Algorithm, Markov Decision Processes (MDP), and neural network regression models, to simulate decision-making in agents with varying levels of knowledge to strategically catch prey while evading predators within a circular graph environment.
- **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 and deploys it to AWS using API Gateway, with an Android application interface to allow users to send a skin lesion image. Published a research paper at an IEEE conference for the same.