Kunal Jethuri

Delhi, India

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Personal Profile

Data scientist at Digitate with experience in developing cognitive solutions to address complex real-world enterprise problems. Skilled in Machine Learning and Applied Analytics along-with a strong problem-solving ability. Zealous about self-learning and research, with a particular focus on computer vision, natural language processing, and time series analysis.

Technical Skills

Languages: Python, C, C++, MATLAB, SQL
Frameworks: PyTorch, Scikit-learn, XGBoost, PM4Py, FastAPI, Flask, LangChain
Development Tools: Docker, Kubernetes, Jupyter Notebooks, VS Code
Cloud Platforms: AWS, Google Cloud Platform, Microsoft Azure
Libraries: Pandas, NumPy, SciPy, Matplotlib, Seaborn, FastAI, Torchvision, NLTK, Transformers, Darts

Education

Guru Gobind Singh Indraprastha University **Aug 2017 – July 2021**
Bachelor of Technology (Electronics and Communication), Cumulative GPA: 8.50 *Delhi, India*

University major project: Satellite Image Segmentation for Flood Damage Analysis.

- Developed a U-Net model with a ResNet-34 backbone for multiresolution, multisensor, and multitemporal satellite image segmentation.
- Applied transfer learning to first segment building footprints and fine-tuned the model for flooded building segmentation tasks, achieving a Dice score of 0.87—significantly surpassing previous benchmarks

Experience

Digitate, Tata Research Development and Design Center **Aug 2021 – Present**
Data scientist *Pune, India*

- Led time series analysis and forecasting initiatives, including the development of an anomaly detection system, which was published at IEEE Big Data 2022 and led to a patent application.
- Developed an augmented intelligence solution for FIFA 2022, integrating data-driven analysis with fan intuition, achieving 81% accuracy during playoffs. This work was published at ECML PKDD.
- Designed and implemented AI-driven tools for cloud cost optimization and sprawl reduction. This work resulted in 3 patent filings, a paper publication at IEEE Big Data 2024 and TMC 2024 Cloud Computing Product of the Year Award
- Developed a human-in-the-loop approach for automating ticket resolution in enterprise environments using Bayesian knowledge graphs and event correlations. This approach won a hackathon for automating fault resolution.
- Built LLM-powered assistants for document and spreadsheet query resolution—leveraging Retrieval-Augmented Generation (RAG) for documents, and a code generator for spreadsheets—integrated with context handling to retain previous interactions for improved accuracy.
- Successfully onboarded new features and provided troubleshooting support to multiple customer engagements.

SAG, Defence Research and Development Organization (DRDO) **June 2019 – Sept 2019**
Research Intern *Delhi, India*

- Collaborated on developing deep learning-based natural voice classification and recognition systems.
- Developed a multilingual voice classifier that separated languages based on vocal patterns while implementing advanced noise and accent filtering techniques to enhance model accuracy.
- The model integrated spectrogram analysis with a hybrid of Convolutional neural networks (CNN) and Gated recurrent units (GRU), achieving significant performance improvements over prior models.

Achievements

- **Winner** of Human in the Loop hackathon challenge for developing a solution utilizing Bayesian Knowledge Graph and Event Correlations, enhancing AI capabilities with human intelligence augmentation.
- **Top contender award** in Context on the Go hackathon challenge for developing a solution employing Process Mining and Association Rule Mining to extract context from diverse data sources automatically.
- **Dare to Try Award** for developing an augmented intelligence solution for FIFA 2022 utilizing an ensemble of data-driven and fan-intuition prediction models.

Publications

- **K. Jethuri**, S. N. Samudrala, P. Priyadarshi and M. Natu D, "Cognitive Metric Monitoring - Characterizing spatial-temporal behavior for anomaly detection," 2022 IEEE International Conference on Big Data (Big Data), Osaka, Japan, 2022, pp. 4768-4776, doi: 10.1109/BigData55660.2022.10021067.
- **K. Jethuri**, S. C. Emmadi, S. N. Samudrala., and M. Natu D. Augmented Intelligence for FIFA Predictions. In: Brefeld, U., Davis, J., Van Haaren, J., Zimmermann, A. (eds) Machine Learning and Data Mining for Sports Analytics. MLSA 2024 at ECML PKDD.[Under Press]
- U. C. Bhookya, **K. Jethuri**, S. R. Ravuru, Priyadarshi and M. Natu, "Addressing Spend Leakage and Optimization of Cloud Costs," 2024 IEEE International Conference on Big Data (BigData), Washington, DC, USA, 2024, pp. 2288-2293, doi: 10.1109/BigData62323.2024.10825120

Patents

- **K. Jethuri**, S. Samudrala, Priyadarshi and M. Natu. Methods and systems for generation and optimization of metric threshold for anomaly detection. Patent Application No. US20240202093A1 (Patent pending). Retrieved from https://patents.google.com/patent/US20240202093A1/fr
- U. C. Bookya, **K. Jethuri**, S. R. Ravuru and M. Natu. Methods and systems to optimize cloud cost by analysing resource utilization. Patent Application No. 202421066668 (Patent pending).
- U. C. Bookya, **K. Jethuri**, S. R. Ravuru and M. Natu. Methods and systems to optimize cloud cost by analysing pricing models. Patent Application No. 202421066667 (Patent pending).
- U. C. Bookya, **K. Jethuri**, S. R. Ravuru and M. Natu. Methods and systems to optimize cloud cost by analysing cloud resource usage. Patent Application No. 202421066669 (Patent pending).