VISHNU SHUKLA

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Summary

AI/ML Engineer with hands-on experience in computational imaging, generative AI integration, and building large language models. Expertise in Python programming, API development, and utilizing ML frameworks like TensorFlow and PyTorch. Proven ability to optimize real-time processing pipelines and support robust model integration for diverse applications.

Education

University of California Riverside **Sep 2024 - May 2026**
Master of Science, Computer Engineering *Riverside*
- **GPA:** 3.6
- **Achievements:** CTO Belto

Ramdeobaba University **Dec 2020 - May 2024**
Bachelor of Technology, Computer Science and Engineering *India*
- **GPA:** 3.76
- **Achievements:** 6 Time International Hackathon Winner

Experience

University of California Riverside **Jan 2025 - Present**
Graduate Quantitative Consultant *Riverside, CA*
- Assisted over 500 graduate, PhD, and postdoctoral students with mathematical problem-solving, coding assistance, and research project optimization using quantitative models and programming skills in Python.
- Supported PhD and postdoctoral researchers in debugging complex code and implementing quantitative models, emphasizing data-driven analysis relevant to ML frameworks.
- Contributed technical modeling and quantitative expertise leading to the successful approval of 2+ competitive academic research grants.
- Provided targeted research support and technical guidance to 20+ PhD students, resulting in publication acceptances at top-tier conferences such as CVPR, ICCV, and ICML.
- Conducted hands-on workshops on Machine Learning and Large Language Models, promoting AI literacy and practical integration of generative models for academic research.

University of California Riverside **Dec 2024 - Present**
Graduate Researcher *Riverside, CA*
- Developed a first-of-its-kind computational imaging pipeline integrating event cameras, hyperspectral sensors, and thermal imaging for robust scene understanding, highlighting foundational ML concepts.
- Achieved breakthrough results in lens flare removal using thermal signals as priors, outperforming traditional RGB-based enhancement methods under high-glare conditions.
- Engineered multi-modal sensor fusion algorithms combining asynchronous event streams, spectral data, and thermal signals to deliver high temporal, spectral, and thermal resolution, demonstrating strong analytical and integration skills.
- Built and optimized deep learning-based image enhancement and low-light processing pipelines, aligning with resource-efficient deployment principles similar to model integration in API development.
- Applied the imaging solutions in diverse applications such as autonomous navigation, surveillance, and scientific imaging, reflecting a robust integration of ML techniques.
- Contributed to a modular imaging framework designed to handle extreme conditions, ensuring reliable performance under reflections, low illumination, and spectral ambiguity.

Bajaj Industries **Feb 2021 - Mar 2024**
Machine Learning Intern *India, IN*
- Designed a machine learning-based Cotton Quality Assessment Model in Python, identifying over 10,000 defective cotton bales per month and supporting production efficiency improvements.
- Developed an automated data pipeline that integrated data from 70+ agro-processing machines into a centralized system, enhancing data accessibility and reducing manual entry errors by over 90% while ensuring seamless API integration.
- Earned recognition as the youngest team member for outstanding contributions, securing the 'Best Employee of the Quarter' award and a strong CEO recommendation for impactful cost reduction and operational improvements.

Technical Skills

- **Foundational Expertise**: Computer Science Background, Foundational ML Concepts
- **GenAI and Foundation Models**: OpenAI APIs (GPT, Whisper), Hugging Face Transformers, LangChain, Vector DBs (FAISS, Pinecone), AI/ML system Design, Generative AI Integration, API development, Large Language Model, Cloud Based AI Solution, Building LLMs, ML Frameworks, NLP Experience, Generative Models Understanding
- **Data Engineering and Big Data**: Apache Spark, Apache Flink, Hadoop, Talend, Google BigQuery, Snowflake, Real-time Data Processing, Data Lakes, MongoDB
- **Developer Tools & DevOps**: GitHub, Jenkins, Docker, VS Code, Eclipse, GCP, Jupyter, MATLAB Simulink, CI/CD, Kubernetes Knowledge
- **Languages**: Python, Java, C, SQL, MATLAB, HTML/CSS, JavaScript
- **Computer Vision and Robotics**: OpenCV, Event Cameras (DAVIS, Prophesee, LUCID), Optical Flow (RAFT, FlowNet), SLAM (ORB-SLAM, DSO, VINS-Fusion), MiDaS, COLMAP, Kalibr, ROS
- **Soft Skills**: Technical Communication, Constructive Criticism, Creativity, Interpersonal Skills, Workshop Facilitation, Mentoring
- **Operating Systems**: Linux (Ubuntu, Kali), Windows

Honors & Awards

- **Winner, National Police Hackathon 2023:**Recognized for innovative solutions addressing public safety and law enforcement challenges.
- **Winner, Smart India Hackathon 2022:**Secured first place at one of India's largest innovation competitions by solving real-world problems using AI.
- **Top 5 Finalist, Re-Imagining Data-Thon, Global FinTech Fest 2022:**Ranked among the top 5 globally for data-driven solutions in finance and technology.
- **International Hackathon Finalist:**Selected to represent Team India in India-Singapore, India-Luxembourg, and UNESCO India-Africa Hackathons.

Publications & Intellectual Property

- Shukla, Vishnu, Raipurkar, A., & Chandak, M. (2024).Blockchain and ML in Land Registries: A Transformative Alliance.International Journal of Informatics and Communication Technology (IJ-ICT), 13(2), 239–247. doi:10.11591/ijict.v13i2.pp239-247
- Shukla, Vishnu, Chandak, M., & Raipurkar, A. (2024).Blockchain in Land Registry for Transforming Land Administration.Journal of Theoretical and Applied Information Technology, 102(3).
- Shukla, V., & Padole, V. (2024).Sentiments and Time Series Patterns for Improved Stock Market Predictions: A Comprehensive Study.TIJER - International Research Journal, 11(1), 26.
- Shukla, Vishnu, & Borikar, D. A. (2023).In the Pursuit of Truth: AI-Enabled Fake News Detection and Flagging.Proceedings of the International Conference on Emerging Trends in IoT and Computing Technologies (ICEICT-2023), April 22-23, Lucknow, India.
- Shukla, Vishnu, Padole, V., Thakre, D. Y., & University, R. (2024).Modified Table for Water Bottle Holder (Patent No. 402850-001, CFBR No. 216269).Government of India - Protecting Intellectual Property. search.ipindia.gov.in/DesignApplicationStatus
- Shukla, Vishnu.Soil Classification Using Hyperspectral Images and Denoising Band Data.(Under Review)