VISHNU SHUKLA

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Summary

Graduate Quantitative Consultant and Researcher with hands-on experience in machine learning, deep learning, and large language models. Expertise in designing experiments, optimizing scalable models, and deploying production-level solutions, including advanced image enhancement pipelines and quality assessment models. Proven track record in academic research and industry projects, driving technical innovation and cross-team collaboration.

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 advanced quantitative problem-solving, coding assistance, and research project optimization using data-driven analysis and quantitative modeling.
- Guided PhD and postdoctoral researchers in debugging complex code and implementing quantitative models, aligning with research experiments and model performance evaluations.
- Contributed technical modeling and quantitative support that led to the successful approval of 2+ competitive academic research grants.
- Provided research support and technical guidance to 20+ PhD students, resulting in publication acceptances at top-tier conferences such as CVPR, ICCV, and ICML, demonstrating rigorous experiment design and evaluation.
- Conducted hands-on workshops on Machine Learning and Large Language Models, integrating concepts from LLM frameworks (e.g., LangChain) to promote AI literacy and application in academic research.

University of California Riverside **Dec 2024 - Present**
Graduate Researcher *Riverside, CA*
- Developed a novel computational imaging pipeline integrating event cameras, hyperspectral sensors, and thermal imaging, laying the groundwork for robust scene understanding under degraded conditions.
- Achieved breakthrough success in lens flare removal by leveraging thermal signals as priors, surpassing traditional RGB-based enhancement methods in high-glare scenarios.
- Engineered multi-modal sensor fusion algorithms that combined asynchronous event streams, spectral data, and thermal signals to achieve high temporal, spectral, and thermal resolution, supporting rigorous experimental framework design.
- Built and optimized deep learning-based image enhancement and low-light processing pipelines using established frameworks, focusing on real-time and resource-efficient deployment.
- Applied scalable design and experiment evaluation techniques to develop imaging solutions for autonomous navigation, surveillance, and scientific imaging in challenging environments.
- Contributed to a modular imaging framework capable of addressing extreme conditions such as reflections, low illumination, and spectral ambiguity, aligning with advanced model training and performance evaluation.

Bajaj Industries **Feb 2021 - Mar 2024**
Machine Learning Intern *India, IN*
- Designed a machine learning-based Cotton Quality Assessment Model, which identified over 10,000 defective cotton bales per month and reduced production inefficiencies, showcasing practical application of deep learning techniques.
- Engineered an automated data pipeline integrating data from 70+ agro-processing machines into a centralized system, thereby improving data accessibility and reducing manual entry errors by over 90%, supporting big data and scalable model training efforts.
- Earned recognition as the youngest team member for outstanding contributions, receiving the 'Best Employee of the Quarter' award and a commendation from the CEO for significantly reducing input costs through robust quantitative analysis and model application.

Technical Skills

- **Languages**: Python, Java, C, SQL, MATLAB, HTML/CSS, JavaScript
- **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
- **Computer Vision and Robotics**: OpenCV, Event Cameras (DAVIS, Prophesee, LUCID), Optical Flow (RAFT, FlowNet), SLAM (ORB-SLAM, DSO, VINS-Fusion), MiDaS, COLMAP, Kalibr, ROS
- **Data Engineering and Big Data**: Apache Spark, Apache Flink, Hadoop, Talend, Google BigQuery, Snowflake
- **Developer Tools & DevOps**: GitHub, Jenkins, Docker, VS Code, Eclipse, GCP, Jupyter, MATLAB Simulink, CI/CD
- **Operating Systems**: Linux (Ubuntu, Kali), Windows
- **Machine Learning & Deep Learning**: Machine Learning, Deep Learning, TensorFlow, PyTorch, Data Science
- **Soft Skills**: Technical Communication, Constructive Criticism, Creativity, Interpersonal Skills, Workshop Facilitation, Mentoring, Curiosity, Scientific Thinking, A/B Experimentation

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)