

KASHYAP BALAKAVI

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PROFESSIONAL EXPERIENCE

NASA Marshall Space Flight Center (MSFC) — AI and ML/DL Engineer <i>Sub-contracts to Virginia Tech, UAH, USRA</i>	May 2023 – Dec 2025 (2 yrs 8 mos)
<i>Virginia Tech — Drought–Fire Analysis using Remote Sensing Data</i>	Aug 2025 – Dec 2025 (5 mos)
<ul style="list-style-type: none">Developed ML pipelines (Python, scikit-learn) to map burned area using PlanetScope and Landsat data.Modeled drought–fire interactions using XGBoost, NDVI/SPEI, and climate data (1980–2023).Automated climate–fire data pipelines, cutting manual processing by 40% and enabling scalable model updates.	
<i>University of Alabama in Huntsville (UAH) — Wildfire Mapping</i>	Jul 2024 – Aug 2025 (1 yr 2 mos)
<ul style="list-style-type: none">Applied deep learning (TensorFlow, U-Net, U-Net-GRU) on satellite imagery, improving wildfire mapping accuracy.Built a GAN-based pipeline (PyTorch) to downscale 30m to 3m imagery, enabling fine-grained burnt-area analysis.Engineered hybrid CNN-RNN models that outperformed baselines, strengthening monitoring workflows.	
<i>Universities Space Research Association (USRA) — Burnt-Area Modeling</i>	May 2023 – Jul 2024 (1 yr 3 mos)
<ul style="list-style-type: none">Deployed deep learning models (CNNs, RNNs), boosting detection accuracy for wildfire events.Enhanced burnt-area pipelines, improving scalability and disaster response readiness.	
University of Alabama at Birmingham (UAB) — Graduate Assistant	May 2022 – Apr 2023 (1 yr)
<ul style="list-style-type: none">Built the <i>ICTV Visual Taxonomy Browser</i> with D3.js, JavaScript, and AWS, preserving 50+ years of taxonomy data.Designed drill-downs and lineage auto-expansion with virology experts, improving usability and adoption.Achieved 63% views-to-user conversion and 3 min avg. session engagement across the research community.	
Office of Annual Giving (UAB) — Data Analyst Intern	Feb 2022 – Apr 2022 (3 mos)
<ul style="list-style-type: none">Built donor churn models using scikit-learn, reducing attrition by 19% and improving retention by 14%.Designed Power BI dashboards for segmentation and A/B testing, increasing campaign ROI by 10%.	
Tata Consultancy Services (TCS) — Assistant Systems Engineer	Jan 2021 – Dec 2021 (1 yr)
<ul style="list-style-type: none">Designed an enterprise inventory system using React, Fluent UI, and SharePoint to streamline tool tracking and approvals.Automated multi-level approval workflows and custom forms in Power Automate, improving efficiency and transparency.Reduced operational inefficiencies by more than 15% by delivering inventory analytics and actionable reports.	

TECHNICAL SKILLS

Programming: Python, R, SQL, JavaScript, C++	
Machine Learning: Supervised/Unsupervised Learning, Statistical Modeling, Feature Engineering, NumPy, Pandas, scikit-learn	
Deep Learning: PyTorch, TensorFlow, Keras, CNNs, RNNs, Transformers, NLP, Computer Vision	
Data Engineering: ETL Pipelines, Data Cleaning, Data Validation, Spark, Snowflake, BigQuery	
MLOps/Cloud: FastAPI, MLflow, Airflow, Docker, AWS, Azure, Google Earth Engine, Git/GitHub	
Analytics & Visualization: Power BI, Tableau, Excel, Dashboards, Reporting, D3.js, ArcGIS, QGIS	

EDUCATION

M.S. in Data Science, Computer Science Department, UAB — GPA: 3.9/4.0	Jan 2022 – Dec 2023
B.Tech in Mechanical Engineering, Vellore Institute of Technology — GPA: 8.53/10	Jul 2016 – May 2020

PUBLICATIONS

- Balakavi, S. et al. Cross-resolution burnt area mapping, *Sensors*, 2025
Balakavi, S. et al. Burnt area mapping – Bandipur case study, *PLOS One*, 2025
Balakavi, S. Super-resolution enhancement of Landsat data using GANs and U-Net, Book Chapter, CRC Press, 2025
Balakavi, K. et al. Scalable visualization of virus taxonomy data, *IEEE VIS*, VAHC 2023

REFERENCES

Dr. Krishna Vadrevu - Deputy Program Manager, NASA MSFC	krishna.p.vadrevu@nasa.gov
Dr. Kristofer Lasko - Lead Remote Sensing Data Scientist, U.S Army Corps	kristofer.d.lasko@erdc.dren.mil