KASHYAP BALAKAVI

+1 (205) 600-4736 | kashyap.balakavi@gmail.com | Huntsville, AL, USA | linkedin.com/in/bsvs/ | github.com/bsvskashyap | bsvskashyap.github.io/kashyap_balakavi-portfolio/

PROFESSIONAL SUMMARY

Machine Learning Engineer with expertise in deep learning (**TensorFlow, PyTorch**) and MLOps, **specializing in accelerating model deployment and building scalable solutions** that transform complex data into business impact across healthcare, IT, and research.

EDUCATION

University of Alabama - Birmingham **January 2022 - December 2023**
Master's, Data Science *GPA: 3.9*
- Relevant Course Work : Advanced Algorithms and Applications, Data Mining, Database Application Development, Deep Learning, Foundations of Data Science, Machine Learning, Probability & Statistics, Quantitative Analysis for Business Managers, Cyber Risk Management, Systems Programming.

PROFESSIONAL EXPERIENCE

Virginia Tech **Remote**
Research Assistant – AI and ML at Virginia Tech *August 2025 - Present*
- Engineered ML pipelines in Python and scikit-learn to estimate wildfire-related air pollutants, improving prediction accuracy by 12%.
- Designed drought-fire risk models using XGBoost with NDVI/SPEI features, extracting insights from 40+ years of climate data.
- Automated satellite preprocessing with Google Earth Engine, cutting data prep time by 40% and enabling scalable ML workflows.

University of Alabama - Huntsville **Huntsville, AL, USA**
Research Associate - AI and ML at ESSC UAH *July 2024 - August 2025*
- Developed deep learning models (TensorFlow, U-Net, GRU) on imagery, boosting wildfire classification accuracy by 10%.
- Streamlined cloud workflows with NASA teams, reducing analysis time from days to hours, in collaboration with NASA scientists, IT, and US Army Corps.
- Deployed GAN pipeline in PyTorch to upscale 30m to 3m imagery, enabling fine-grained burnt-area analysis.
- Optimized CNN-RNN models that outperformed baselines, while mentoring a junior researcher.

Universities Space Research Association **Remote**
Data Analyst at USRA *May 2023 - July 2024*
- Applied CNN-RNN models on PlanetScope/Landsat data, improving wildfire and deforestation detection.
- Integrated ML outputs into NASA's wildfire monitoring systems, streamlining operational decision-making.
- Enhanced burnt-area pipelines for scalability, enabling faster disaster response interventions.

University of Alabama - Birmingham **Birmingham, AL, USA**
Graduate Assistant - Data Science *May 2022 - April 2023*
- Built an interactive taxonomy browser in D3.js, JavaScript, AWS, preserving 50+ years of virology data.
- Developed advanced features like search, tooltips, lineage expansion, enabling real-time exploration for researchers.
- Increased engagement with 63% conversion and 3+ minute session averages across the research community.

Annual Giving Intern – Data Analytics *February 2022 - April 2022*
- Predicted donor churn with scikit-learn, partnering with Director, marketing team, and VP leadership, cutting attrition by 19%.
- Delivered dashboards in Power BI, driving segmentation and A/B testing that lifted campaign ROI by 10%.

Tata Consultancy Services **Hyderabad, TG, India**
Assistant Systems Engineer Trainee – Data Analytics *January 2021 - December 2021*
- Collaborated with stakeholders to gather requirements and accelerate delivery.
- Built an inventory system in React, Fluent UI, and SharePoint, streamlining asset tracking and approvals.
- Automated workflows with Power Automate, cutting delays by 21% and enabling faster leadership decisions with Power BI dashboards.

PROJECTS & OUTSIDE EXPERIENCE

Real-Time Heart Disease Risk Prediction Engine **Remote**
- Deployed ensemble ML pipeline (XGBoost, Random Forest, SVM, Naive Bayes, KNN) via Flask API on AWS for real-time patient risk predictions.

AI Product Recommender
- Developed hybrid recommender system using BERT + collaborative filtering, deployed with FastAPI on Azure, scaling personalization to 20K+ items.

SKILLS

Programming: Python, SQL, C++
Machine Learning: scikit-learn, XGBoost, Feature Engineering, Time Series Modeling
Deep Learning: PyTorch, TensorFlow, Keras, CNNs, RNNs, Transformers, NLP, Computer Vision
MLOps & Cloud: FastAPI, MLflow, Airflow, Docker, Kubernetes, AWS, Azure, Git/GitHub, Google Earth Engine
Data Engineering & Analytics: Spark, Snowflake, BigQuery, ETL Pipelines
Visualization: Power BI, Tableau, Excel, QGIS, ArcGIS

PUBLICATIONS

Publications in IEEE VIS, Sensors, PLOS ONE, and CRC Press on visualization, wildfire mapping, and deep learning.