

# SHIVAM ARALIKATTI

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## Education

**Vellore Institute of Technology**

Aug 2020 – May 2024

*Bachelor of Technology in Electronics and Communications — CGPA: 8.0*

*Vellore, India*

- Relevant Coursework: IoT, Machine Learning, VLSI, Digital Logic and Design

## Technical Skills

**Programming Languages:** Python, SQL, C++, Verilog, HTML, CSS, JavaScript

**ML & AI Techniques:** Supervised & Unsupervised Learning, Deep Learning, Computer Vision, NLP, LLM

**Frameworks & Tools:** PyTorch, TensorFlow, Keras, Hugging Face Transformers, OpenCV, Tesseract OCR

**Statistical Modeling & Analysis:** Regression, Classification, Clustering, Gradient Boosting, Time Series

**Data Analytics & Visualization:** Pandas, NumPy, SciPy, Scikit-learn, Matplotlib, Seaborn, Looker (Google), Tableau (Basic)

## Experience

**Research Associate (ML Developer)**

June 2024 – Present

*Code development using Python for ML & Deep Learning models*

*FLAME University*

*Pune, India*

- Conducted research on medical image classification using Variational Autoencoders (VAE) and CNNs, increasing cancer detection accuracy by 12% on imbalanced datasets.
- Built and deployed an NLP-based essay scoring engine using Flask, achieving a prediction RMSE of 0.87
- Processed and visualized mess usage data to forecast daily food consumption, reducing food wastage by approximately 65% using time-series modeling.

**Research Intern**

Aug 2023 – Dec 2023

*National University of Singapore*

*Singapore*

- Trained ML models to detect smoking imagery, hate speech, and fake news by scraping and annotating over 12,000 social media posts.
- Developed a 3D face reconstruction pipeline for deepfake correction using multi-view 2D inputs, restoring over 40% of facial features to authentic representations
- Integrated a CNN-based classification model into a web interface, improving classification speed by 25%.

## Projects

**Not All Tokens Are Equal: Adversarially Robust BERT Classification** — [\[Link\]](#)

Jan 2026 – Jul 2026

- Proposed a novel Per-Dimension Top-K Average Pooling strategy for BERT that selectively aggregates high-activation token representations, improving robustness to adversarial token injection without modifying the underlying model architecture.
- Benchmarked Top-K pooling against CLS, Global Average Pooling, Global Max Pooling, and hybrid variants across spam detection, automated essay scoring, and hate speech classification datasets.
- Reduced adversarial Attack Success Rate on the Enron spam dataset from 70.65% to 37.07% using the best Hybrid ( $K = 3$ ) model while maintaining over 99% clean classification accuracy.

**EvalEdge: A Modern Hybrid Essay Evaluator** — *RF, Transformers, GloVe Embeddings*

Oct 2024 – Apr 2025

- Conducted a comparative study on Automated Essay Scoring using various regression models and text embedding techniques and identified Random Forest with GloVe embeddings as the most effective approach with MAE of 1.40
- Developed a web application showcasing the best AES model, featuring grammar checks, sentiment analysis, AI detection, and a summary dashboard based on the evaluation of over 2,500 essays with accuracy comparable to human graders.

**Regulatory Analysis of Online Social Media Platforms** — *NLP, CV, GNN* [\[Link\]](#)

Sep 2023 – Dec 2023

- Developed a text-image classification system with OCR integration to label over 12,000 posts as promotional, neutral, or advisory.
- Engineered GNN model combining LDA, TF-IDF, and GCN with cosine-weighted edges for text classification, achieving 93.8% accuracy.

## Publications

- Shivam Anand Aralikatti, *et al.* "Graph-Based Regulatory Analysis of Online Social Media Content" – Published in *Springer LNNS Series (ICSCSP 2024)*. [\[Link\]](#)
- Shivam Anand Aralikatti, *et al.* "Not All Tokens Are Equal: Per-Dimension Top-K Pooling for Adversarially Robust BERT Classification" – Published in *ACL, GEM - 2026*. [\[Link\]](#)

## Certifications

- **Data and AI:** AI Analyst Certification (IBM), SQL - Advanced Certification (HackerRank)
- **Advanced Data Analytics:** Data Analytics using Deep Learning(NUS), Data Analytics Using Big Data(AWS)
- **Other:** Agile Project Management (Coursera), Foundations: Data, Data, Everywhere (Coursera)