

KAUSHIK ALAGUVADIVEL RAMYA

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Education

New York University | *Master of Science in Computer Science* | GPA: 3.33/4.0 May 2027

- *Relevant Coursework:* Algorithms, Big Data, Information Visualization, Machine Learning, Data Science

Thiagarajar College of Engineering | *Bachelor of Technology in Information Technology* | GPA: 3.7/4.0 May 2025

- *Relevant Coursework:* Machine Learning, Artificial Intelligence, Data Mining, Data Analytics, Cloud Computing, Algorithm Design, Fuzzy Sets and Clustering, Information Retrieval, Probability and Statistics
- Teaching Assistant for Cloud Computing and Distributed Systems, supporting 200+ students

Experience

Machine Learning Research Assistant Sept 2022 – May 2025

Thiagarajar College of Engineering | Advisor: Dr. S. Padmavathi | *Explainable AI, Deep Learning, Fairness in ML*

- First author on 3 IEEE publications in AI and Explainable ML, garnering 10+ citations — [Link](#)
- Partnered with Defence Institute of Advanced Technology to create lightweight CNN for UAV threat detection
- Architected Cross Stage Partial Network achieving 5× lower computational complexity, 20× faster inference, and 5% accuracy improvement over SOTA models for real-time defense applications
- Applied SHAP game-theoretic framework to analyze 500+ wearable sensor features, enhancing model interpretability while cutting feature redundancy by 30%

Machine Learning Engineer Intern Dec 2023 – Jan 2024

Pi42 | *GenAI e-commerce platform with full-stack development, Image Generation, Generative models* | [Link](#)

- Built Tweeshirt, an AI-powered e-commerce platform using Stable Diffusion, React.js, and Node.js for custom apparel design
- Integrated OAuth authentication with automated session management, cutting unauthorized access by 90% and improving login speed by 35%
- Created RESTful APIs for asynchronous Stable Diffusion image generation, processing 300+ daily requests with sub-2-second latency
- Automated complete order lifecycle from customization through shipping, eliminating manual intervention
- Streamlined production builds to accelerate order processing by 35%

Data Analytics Intern Jun 2023 – Jul 2023

Kaar Technologies | *Predictive analytics and statistical modeling for business forecasting*

- Engineered Python data pipelines with Pandas and NumPy to analyze 100K+ transaction records for seasonal trends
- Enhanced sales forecasting accuracy by 15% using ARIMA and multivariate regression across 6+ seasonal cycles

Technical Skills

- **Languages:** Python, C, C++, Java, JavaScript (ES6+), SQL, HTML5, CSS3, Typescript, Bash/shell scripting, Excel
- **Technologies:** React.js, Next.js, Responsive Design, Node.js, Express.js, Flask, REST API, Django, Tableau, Power BI
- **Databases:** MongoDB, Firebase, MySQL, Amazon S3, DynamoDB, PostgreSQL, SQLite, Snowflake, BigQuery, Redshift
- **Cloud & DevOps:** AWS Certified AI Practitioner and ML Engineer, Azure, Docker, Git, Kubernetes, Vercel, Agentic AI
- **ML/AI:** Deep Learning, TensorFlow, PyTorch, Keras, Scikit-learn, NumPy, pandas, Jupyter Notebook, SciPy, NLP, Matplotlib, Seaborn, Plotly, MLOps, Apache Spark, Hugging Face Transformers, LangChain, RAG, Prompt Engineering
- **Research & Methods:** Statistical Modeling, A/B Testing, Causal Inference, Neural Networks, Optimization, Bayesian Methods, Time Series Analysis, Literature Review, Transfer Learning, Reinforcement Learning, GAN, Weight & Biases

Projects

Emotion Recognition using XAI | *GRU, SHAP, LIME, Fairness in ML, Bias Mitigation, Deep Learning* [Link](#)

- Created GRU-based emotion classifier using biosignals (ECG, EMG, GSR, respiration, BVP) with 95% accuracy
- Fairness-aware techniques (LFR, DIR, Reweighting) to reduce demographic bias by 30% while maintaining performance
- Implemented SHAP (Shapley Additive Explanations) and LIME (Local Interpretable Model-agnostic Explanations) for comprehensive feature contribution analysis and visualization of intricate model attributes

LegalAppa – AI-Driven Legal Document Platform | *React.js, Node.js, GenAI, LLM, Firebase, LaTeX, REST API* [Link](#)

- Engineered full-stack platform using React.js, Node.js, and Python, serving 15+ lawyers with LLM-powered document automation and LaTeX compilation for professional legal document generation
- Implemented Firebase Authentication with JWT token validation for role-based access control and built RESTful APIs handling document CRUD operations with Firestore for real-time synchronization

Energy Forecasting System | *LSTM, Python, ML Frameworks, Deep Learning, Time-Series Forecasting* [Link](#)

- Built time-series forecasting application for CS department energy consumption using fine-tuned LSTM, achieving 95% accuracy for 3-day predictions
- Leveraged Graph Signal Processing and GFT for appliance-level energy disaggregation with 90%+ identification accuracy