# Vin Tyagi

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## Experience

**Data Intern** June 2025 - August 2025
*Kalderos* *Boston, MA*

- Built a Python-based classification pipeline (***Pandas, scikit-learn, imbalanced-learn, LightGBM***) to categorize (Under NDA), **cutting manual binning effort by roughly 87%** while ensuring consistency in prediction
- Optimized prediction uploads to Snowflake by **45%**, balancing data ingestion and memory allocation
- Worked cross-functionally with product consumers to validate model results and analyze consistency in prediction strategy
- Engineered the project into production workflow, ensuring continuous ingestion of fresh production data and upload of predictions into storage (***Snowflake, Git, Azure Blob Storage***)

**Technology Intern** May 2024 – Aug 2024
*DataScan* *Alpharetta, GA*

- Worked cross-functionally with data analytics teams to spearhead stress test functionality for RiskGauge, allowing test volumes of up to **130%** of production data
- Developed features using full-stack development (***Java, .NET, Angular***), delivering key client-requested features to the RiskGauge application and producing clean, efficient, and well-tested code
- Developed test suites and created a **dynamic commit-based** logging schedule through scripting within CI/CD infrastructure (***YAML, Bash, GitLab***) to ensure robust and scalable deployment pipelines

**Undergraduate Research Assistant** Oct. 2024 – Jan. 2025
*UMass SOLAR Labs* *Amherst, MA*

- Formulated a finite-horizon RL framework with custom state space, action space, and transition/reward function spaces to model and benchmark chunk-level video download strategies under constrained network conditions
- Translated BFS-based heuristics into Markov Decision Processes (MDPs) using Python
- Collaborated with Professor Hajiesmaili and PhD student Ativ Joshi to optimize short video content delivery systems through MDP optimization.
- Developed pre-fetching models to improve user QoE by anticipating short-form video consumption patterns

## Skills

**Languages:** Python, R, SAS, PostgreSQL, Mongo, Java, C#, C, JavaScript/TypeScript, HTML/CSS
**Libraries & Frameworks:** Scikit-learn, TensorFlow, PyTorch, LightGBM, Node.js/Angular/React, Microsoft .NET
**Data tools:** Snowflake, GitHub, Azure Blob Storage/Container Service, AWS S3, DBT
**Workflow:** GitHub Actions, GitLab CI/CD, AWS Lambda
**Certifications:** AWS Certified Cloud Practitioner

## Projects and Outside Experience

**American Statistical Association - DataFest Hackathon** | *R, Python* Spring 2025

- **Best in Panel** for the 2025 cohort of the competition, outperforming **9-10** other groups in the panel
- Received data from undisclosed source to provide motivated, business-oriented solutions
- Provided statistical insights and consulted on trends identified in data

**Data Augmentation Research Project** | *torch/torchvision, pandas, numpy, matplotlib* Fall 2024

- Researched the effect of image perturbations on classification performance
- Used diffusion models to generate single image embeddings, with the end goal being the generation of semantically different images to boost the dataset
- Implemented **ResNet50** on a custom subset of **ImageNet**

**HackUMass XII Project** | *MongoDB, Express.js, React.js, Node.js* Fall 2024

- Designed and helped develop a game used to test user memory and color recognition
- Collaborated in a team of developers in order to deliver a **MERN** stack persistent web application
- **Ranked top 5** in UI/UX category

**ClimaSense** | *Node.js/Express.js* Spring 2024

- Implemented a **Node.js** back-end to develop a personalized climate change app
- Collaborated in a team of 4 developers to create functioning full stack web application involving **CRUD** principles, proper interaction between the front and back-end, as well as data persistence and storage

## Education

**University of Massachusetts Amherst** Amherst, MA
*Dual B.S. in Computer Science and Mathematics* *Sep. 2022 – May 2025*

- **GPA**: 3.801
- **Coursework**: Database management, Information Systems, Data Science, Artificial Intelligence, Principles of Data Science, Applied Information Retrieval, Advanced Linear Algebra Applications, Regression Analysis

**University of Massachusetts Amherst** Amherst, MA
*Accelerated M.S. in Computer Science* *Sep. 2025 – Present*

- Recipient of the Bay State Award
- **Coursework**: Reinforcement Learning, Neural Networks, Data Visualization, Machine Learning, Algorithms for Data Science