

# VAMSHI KUMAR REDDY GADE

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## EDUCATION

### University of Massachusetts Amherst

Master of Science in Computer Science

May 2024

GPA: 3.94/4

### Indian Institute of Technology Madras

Bachelor of Technology in Computer Science

May 2016

Chennai, India

## WORK EXPERIENCE

### Visa Inc

Bangalore, India

Senior Software Engineer

July 2016 - Nov 2018

- Developed Risk Controls UI for a merchant-facing portal using React JS and Redux, incorporating a cohesive and responsive design. Ensured the page met accessibility standards improving overall usability and functionality.
- Created and managed RESTful APIs using Java and Spring frameworks, by streamlining integration and enhancing the merchant profile configuration systems.
- Onboarded multiple payment processors onto a legacy portal and enabled reporting using Recon Engine batching jobs

### Dell Force10 Networks

Chennai, India

Software Engineer Intern

June 2015 - July 2015

- Leveraged Intel DPDK to streamline network processing, enabling direct NIC-to-GPU data transfer and boosting real-time pattern-matching capabilities.
- Implemented GPU-accelerated regular expression matching, increasing the speed and efficiency of deep packet inspection and traffic analysis.

### ITS Planners & Engineers

Hyderabad, India

Software Engineer Intern

May 2014 - July 2014

- Ported C-based project using the Net-SNMP library from Linux to Windows Embedded, bridging the gap across platforms

## SKILLS

Core Languages:	Python, C, C++, Java, Kotlin, JavaScript
Web Technologies:	React.js, Redux.js, Node.js, TypeScript, HTML, CSS
Testing Tools:	React Testing Library, Jest, Mockito, JUnit, TestNG, PyTest
Data Science Libraries:	scikit-learn, pandas, TensorFlow, NumPy
Big Data:	PySpark, Apache Flink, Hadoop, MapReduce
Cloud & Devops:	AWS, Docker, Git, CI/CD, Kubernetes

## PROJECTS

### Adversial Language Model Tuning *Python, LLM*

Designed and built a perturbation framework to generate perturbations at both word level and character level. Designed a hybrid model combining BERT with ELMo's character-based embeddings, evaluating its performance on perturbed text while maintaining accuracy on clean data. Fine-tuned the model on the perturbed dataset to analyze its performance across classification tasks. Conducted extensive hyperparameter optimization and error analysis, revealing key insights into model behavior under various perturbation conditions and identifying areas for future research and improvement

### Scalable Toystore With Caching, Replication and Fault Tolerance *gRPC*

Implemented a distributed toy store application using microservices. It consists of three main services: a front-end service, a catalog service, and a replicated order service. The system incorporates caching to improve performance, replication for fault tolerance, and a simple leader election algorithm for the order service. Developed using Java gRPC, the micro services are containerized with Docker and deployed on AWS using Kubernetes. This distributed system is scalable and, includes cache invalidation, data consistency, and crash failure recovery.

### Handwritten Digit Recognition System

Developed a probabilistic graphical model to recognize handwritten digits from noisy image data. The system utilized conditional random fields and efficient message-passing algorithms for inference. Implemented gradient-based learning for model optimization and explored Monte Carlo methods for parameter estimation.

### Captcha Recognition Using Neural Networks *Python, Neural Networks, scikit-learn*

Designed and implemented a captcha recognition system utilizing deep learning techniques to decode distorted text images. Employed convolutional neural networks (CNNs) for feature extraction and character recognition. Evaluated model performance through accuracy and loss metrics, and applied techniques like dropout and batch normalization to prevent overfitting. Achieved high recognition accuracy and robustness against various captcha distortions.

## RELEVANT COURSEWORK

Advanced Natural Language Processing, Probabilistic Graphical models, Reinforcement Learning, Algorithms for Data Science, Distributed and Operating systems

## AWARDS & ACHIEVEMENTS

- Recipient of the **Graduate Student Senate Excellence Award**, UMass Amherst (2023-2024). Recognized for leadership, advocacy, and initiatives that enhanced graduate student life.
- Secured an All India Rank of **197** in IIT-JEE 2012 among half a million students (99.99<sup>th</sup> percentile)