

Deepak Gouda

☎ (+1) 404-948-7772 ✉ deepakgouda@gatech.edu in deepakgouda 🌐 deepakgouda.github.io

Education

Master of Science

Computer Science-Machine Learning, GPA 4.0/4.0

Georgia Institute of Technology

Aug 2022 - May 2024

Bachelor of Technology

Mathematics and Computing, GPA 8.80/10.0

Indian Institute of Technology, Guwahati

July 2016-July 2020

Selected Projects

- **Video Context Analysis and Summarization using LLMs** Georgia Tech
Prof. Chao Zhang, College of Computing Fall 2023
 - Fine-tuning LLM on video data for context generation, video summarization and perform Q&A sessions
 - Current choices : BLIP for language-image pretraining, LLaMA model for text generation
- **Parameter-free AdaGrad for Strongly Convex Functions [arXiv]** Georgia Tech
Prof. Jacob Abernethy, College of Computing Spring 2023
 - Developed a parameter-free adaptive gradient optimizer for strongly convex losses.
 - Devised a hierarchical approach to eliminate manual tuning of the learning rate and the prior knowledge of the degree of strong convexity; the algorithm achieves a sub-linear regret bound of $O(\log T)$
 - Method can be extended to develop parameter-free versions of RMSProp and Adam.
- **Text Rating Prediction [Report]** Georgia Tech
Prof. Mahdi Roozbahani, College of Computing Fall 2022
 - Developed machine learning classifier and regressor models to rate books based on text, summary, author, and publisher information. Books API to enhance the prediction model's performance and accuracy.
 - Achieved best results using GradientBoost (F1 score : 0.72) and Random Forest Regressor (MAE : 0.29).

Selected Coursework

Deep Learning for Text Data, Big Data Systems and Analytics, Convex Optimization, Online Learning, Statistical Machine Learning, Internet Data Science, Graduate Algorithms, Parallel Computing

Technical Skills

LANGUAGES	Python, C/C++, Bash
FRAMEWORKS	PyTorch, Pandas, Numpy, Scikit, Docker, Airflow, Git
DATA	PySpark, Hadoop, MySQL, Postgres, Google BigQuery

Experience

- **Internet Initiative of Japan** Tokyo, JP
Research Intern, Advisor - Romain Fontugne June 2023 - July 2023
 - Identified routing behavior of organizations by size, Regional Internet Registry (RIR) and business sector; also identified adoption trends in Resource Public Key Infrastructure (RPKI) infrastructure.
- **Kivi Capital** Delhi, IN
Systems Developer June 2020 - May 2022
 - Led the design and development of data snap and trade execution systems which capture upto 50 GB data packets in 6 hours; the execution algorithm guarantees execution with disaster recovery
 - Key Technologies - Socket Programming, Multi-Threaded Systems, C++, Pandas

Achievements and Services

- **Student Travel Grant:** ACM HotNets, 2022, ACM IMC, 2023 - for current research on Internet routing
- **ACM CoNEXT 2023:** Artifact Evaluation Committee
- **CS 8803 SII:** Teaching Assistant for the course on Securing Internet Infrastructure
- **InfosecIITG :** Founding member of the Information Security group, ranked **298**(in 2020) globally
- **American Express, 2018 :** Top 1% among 2700+ teams in Analyze This - flagship hackathon
- **Microsoft Code.Fun.Do++ 2018 :** Runners-up in coding hackathon
- **JEE Advanced 2016:** 99.2%ile from 200,000 applicants
- **JEE Mains 2016:** 99.99%ile from 1.2 Million applicants

Publications

- **D. K. Gouda, S. Jolly and K. Kapoor,** “Design and Validation of BlockEval, A Blockchain Simulator” International Conference on COMmunication Systems & NETworkS (COMSNETS), 2021
- **De, S., Dey, A.K. & Gouda, D.K.** “Construction of Confidence Interval for Stock Prices Predicted by LSTMs”. Annals of Data Science. 9, 271–284 (2022)