Shashank Satish Damodaran

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EDUCATION

Northwestern University — **Evanston, IL**

*Master of Science (**M.S.**) in Computer Science | **GPA: 3.9/4*** — **Dec 2020**

Relevant Coursework: Distributed Systems, Database Systems, Operating Systems, Cryptography, Intensive Program Design, Data Science, Social Network Analysis, Machine Learning, Language Modelling, Intelligent Systems

Labs/Groups: Database Systems and Security Research Lab, AI Journal Club

Rajiv Gandhi Technological Institute — **Bhopal, India**

*Bachelor of Engineering (**B.E. HONS**) in Computer Science & Engineering | **GPA: 3.63/4*** — **June 2019**

Relevant Coursework: Algorithms, Data Structures, Cloud Computing, Object Oriented Design, Software Development Life Cycle

RELEVANT EXPERIENCE

Practicum LLC - Quantitative Developer/Backend Intern — **Remote | July 2020 – Sept 2020**

- Developed learning-cum-trading platform for novice quant traders returning an average market edge of 2.59% on live trade.
- Designed database schema to handle data from YahooFinance API through endpoints in Flask, backtested upto 5 years of daily/hourly data. Translated financially proven techniques like Statistical Arbitrage, and Mean Reversion in Python.

Northwestern University - Graduate Research Assistant — **Prof. Jennie Rogers | Evanston, IL | Jan 2020 - Present**

- Contributed to **NSF-funded** private data federation project : **VaultDB** to securely query hospital data provided by HealthLNK.
- Generated aggregate functionality in C++ for the query execution engine in both encrypted and plaintext settings.
- Developed test suite for secure multi-party computation for testing operators across **TPC-H** benchmark queries.
- Lead Query plan enumeration to improve performance of query optimizer to sub-quadratic by operator reordering.

PROJECTS

RAFT protocol for Consensus and Leader Election — **June 2020**

- Integrated a reliable, fault-tolerant emulation of RAFT to achieve consensus-based leader election in GoLang.
- Significantly Improved upon a simple primary-backup KV store, built atop a highly distributed implementation of Map-Reduce.

Social Network Mapping of Bali Bombing Terrorists — **May 2020**

- Scrutinized terrorist network in R for hypothesis analysis to model formation and dismantling of terrorist cells.
- Predicted missing ties, unidentified recruiters via ERGM. Fine-tuned Autologistic Actor Model for actor-based characteristics.
- Optimized SIENA for longitudinal analysis, based on relational shift, and identified potential (crucial) canaries in the network.

Health-centric U.S. restaurant trend analysis — **Apr 2020**

- Analyzed restaurants from Yelp dataset on cuisine and regional popularity; classified based on health metrics.
- Developed effective visualizations on Tableau with detailed time-series analysis for restaurants across Chicagoland to potentially guide opening of new restaurants post COVID.
- Implemented the entire DS pipeline from scratch in Python, and enhanced performance of Machine Learning models by 8.745%.

Local Angle: Geographically/Institutionally personalized celebrity news feed — **Dec 2020**

- Constructed NLP system for geographically tagging articles of locally famous people to their birth city and/or alma mater.
- Created robust NER in Python, managed database server, and designed aesthetic UI for the personalized news feed.

High availability Web server hosting through Fail-over Clustering — **July 2018**

- Managed data-center virtualization on VMWare Workstation cluster formation on MS Server-2008 R2 using SAN.
- Strategically deployed and tested fail-over cluster (with Quorum) for maintaining cloud-based services and web apps.

SKILLS

Languages:	Java, Python, C++, Racket, GoLang
Databases:	PostgreSQL, MySQL, Oracle 10g, MongoDB, SQL Server, CockroachDB
Machine Learning:	KNN, SVM, CNN, Clustering, Random Forest, Decision Trees, scikit-learn, Text Mining
Web Development:	Node.js, Express, HTML/CSS, Flask, Javascript, API, REST, MVC Model
Tools/IDE:	Git, Tableau, LINUX, MS Server R2, Jupyter, NetBeans, RStudio, Postman, IntelliJ

PUBLICATIONS

- Vishal Shrivastava, **Shashank Satish Damodaran** & Megha Kamble (2020) Adalward: a deep-learning framework for multi-class malicious web page detection, **Journal of Cyber Security Technology**, 4:3, 153-195, January 2020.
    - Presented a 5-layer deep learning framework to identify and classify malicious websites as spam/phishing or spyware.
    - Hypothesized and verified a set of supervised models; achieving an accuracy of 99.76% on 1 million+ web URLs.
    - Shortlisted as a finalist (6/463) for Dept. of Atomic Energy's problem statement in Smart India Hackathon - 2019.

ACTIVITIES

- Finalist - Smart India Hackathon (software edition), 2019
- Winner - Wireless Robotics (IIT-Kanpur Zonal Round) - 2016