Shashank Satish Damodaran

(847) 262-6438 | shashank-satish-d@u.northwestern.edu | in/shashank-satish | shawshank-cs.github.io | Evanston, IL

EDUCATION

Northwestern University   **Evanston, IL**
Master of Science (M.S.) in Computer Science | GPA: 3.91/4   **March 2021**
   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

Northwestern University - Graduate Research Assistant (Databases)   Prof. Jennie Rogers | Evanston, IL | Jan 2020 - Present
- Accelerated the **NSF-funded** private data federation research project : **VaultDB** to securely query hospital data.
- Generated aggregate and join functionality in C++ for the query execution engine in both encrypted and plaintext settings.
- Developed a robust test harness for secure multi-party computation for testing operators across **TPC-H** benchmark queries.
- Lead build-pipeline development via Docker, and successfully deployed it on 5 (major) participant hospitals in Chicagoland.
- Incorporated query plan enumeration, and improved performance of query optimizer to sub-quadratic by operator reordering.

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% over live trade.
- Designed database schema to handle data from YahooFinance API through endpoints in Flask, backtested upto five years worth of daily/hourly data. Translated financially proven techniques like Statistical Arbitrage, and Mean Reversion in Python.

SELECT 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.

TECHNICAL SKILLS

Languages:	C++, Java, Python, 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:	HTML/CSS, Javascript, Flask, API, REST, JSON, MVC Model, SDLC
Tools/IDE:	Git, Docker, LINUX, VIM, MS Server R2, Jupyter, Tableau, NetBeans, RStudio, Postman, Clion, 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.

CERTIFICATIONS / ACTIVITIES

- **DBMS** - IIT, Kharagpur (NPTEL), **Networking and Security Architecture with NSX** (VMware), **Databases for Data Science** (IBM), **Cloud Computing Associate** (CRISP), **Getting started with CockroachDB** (Cockroach University)
- Finalist (6/463) - Smart India Hackathon (software edition), 2019; Winner - Wireless Robotics (IIT-Kanpur Zonal Round) - 2016