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REHAN VIPIN

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EDUCATION

Bengaluru, Karnataka **PES University** Fall 2018 – 2022(Expected)

- B.Tech. Computer Science Engineering. CGPA: 9.11
- Received the MRD Scholarship (Top 20% of the batch) for all semesters completed.
- Selected coursework: Data Structures; Advanced Algorithms; Big Data; Computer Architecture; Databases; Data Science; Linear Algebra; Unix; Web Technologies; Discrete Mathematics and Logic; Computational Theory.

EMPLOYMENT

Research Project Intern **PES Innovation Lab** **May 2020 – Present**

Approximately Private,

- Reduced running time of privacy preserving deep neural networks to 25% of time required by garbled circuits style state-of-the-art, through circuit approximations, cryptographic optimizations and automated neural network pruning.
- Designed a framework to create private, secure and scalable deep neural networks that preserve privacy of model owners and data owners by using secure multiparty computation and public key cryptography.
- Redesigned and automated model optimization techniques to make a model and dataset agonistic framework.
- Leveraged Knowledge in Cryptography, Deep Learning, Design and Analysis of Algorithms and Computer Architecture.

Subject Matter Expert **PESU IO** **Nov 2019 – Dec 2019**

Blockchain and cryptocurrency technologies.

- Taught Cryptography, Decentralized applications and Blockchain fundamentals to a batch of 10 university students.
- There were no prerequisites for the course, I explained and taught how to code cryptocurrencies from scratch in Python. At the end of the course, the students were able to develop custom cryptocurrencies for their applications.
- Mentored chosen students, exceptional and slower learners, through meetups, one-on-one talks and extra material.
- Leveraged Knowledge in Cryptography, REST APIs, Python, Test-driven development and Blockchain development.

Selected Software Projects

- **Ransomware suite** (2019-2020) Crypto-Ception is a fully functional cross-platform ransomware written in Python/ Shell script. Research also included developing a detector style antivirus from scratch. Used network and OS concepts.
- **Fast Doodle recognition** (2020) Fourksy is an interactive deep-learning GUI application that recognizes doodles as they are being drawn. Uses Fast-Fourier-Transforms to achieve 2x speed up on convolution operations over default implementation. Achieved 96% accuracy. Used TensorFlow (Customized layers from scratch), Kivy and Python.
- **Container management system** (2020) Cardboard-box, a rootless container management system written from scratch in Go. Allows creating and managing resources. Lightweight docker like interface.
- **Open source** (2018+) Regular contributor, in multiple tech stacks. Selected ones (github.com/) - verless/verless, rehanvipin/styx. Mini projects, in Go during 100DaysOfCode, at github.com/rehanvipin/soul-sapphire.

ADDITIONAL EXPERIENCE AND AWARDS

- **Teaching Assistant, Unix 2020**: Was a TA for the Unix course offered to sophomores at PES University. Topics taught involve booting, processes, security. Incorporated interactive learning activities for the first time in the course. Designed the syllabus and assignments and graded them. Included regular team meetings with COO of the university.
- **Semi-Finals, E-yantra 2019:** Reached the semi-finals of e-Yantra, a national level college robotics contest. Top 100 amongst 7000+ teams. Built a disaster relief supply bot using an embedded-C microcontroller and image recognition.
- **Semi-Finals HashCode 2019:** Top 30 teams amongst 350+ teams in the hackathon organized by Microsoft Innovation Lab. Built a WSN cluster to detect forest fires with machine learning, and a web-app to issue notifications.
- **University Clubs (2018+):** Active member in organizing/participating in workshops, meetings, competitions by Open-Source (PESOS), Quantum computing (QForest) clubs and college's center of Information security (ISFCR).

Languages and Technologies

- (Fluent): Python, C, C++, Go; (Proficient): HTML, SQL; (Familiar): JavaScript, CSS, Shell-script.
- (Proficient) Linux, Git, TensorFlow, PyTorch, Django; (Familiar) GCP, AWS, Docker.