Onkar Deshpande

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github.com/oddgr8

INTERESTS   Distributed Systems, Cloud Computing, Software Systems, Computer Networks

EDUCATION

Indian Institute of Technology Bombay   2017 - 2021
B. Tech with Honors in Computer Science and Engineering   CPI: 9.78/10
All India Rank **8** in JEE among 1.5 million aspirants
Awarded **Institute Academic Prize** in fresher year.

EXPERIENCE

Rubrik India, Bangalore, India   2021 - Present
Software Engineer

- Projects directly dealing with cloud computing and distributed systems.
- Developed asynchronous **recovery solution** for backups taken by Azure SQL that is robust to node crashes, network outages and other transient failures.
- Worked on periodic integrity check of **database snapshots** and log backups taken by *AWS Backup* service and it's APIs.
- Built visibility solution for permissions acquired from various cloud providers.

Rubrik India, Bangalore, India   Summer 2020
Software Engineering Internship

- Built an automated system to discover and protect various cloud-native workloads based on resource tags and customer-defined rules.

KEY PROJECTS

mpC: Compiler for secure multi-party Computation   2020 - 2021
Prof Manoj Prabhakaran, IIT Bombay, India

- mpC is a high level language for implementing **secure multi-party computation** protocols that provides many common primitives and abstracts out low-level implementation details.
- Implemented various protocols in the language as a proof of concept including a Guaranteed Output Delivery protocol in honest majority MPC.
- Implemented libraries for some primitives such as **polynomial extrapolation**, **Shamir secret sharing** and **Verifiable secret sharing**.

Verification of k-CAS systems   Fall 2019
Prof Krishna S Narayanan, IIT Bombay, India

- Worked on verification of programs with multiple identical threads interacting with a shared memory using READ, WRITE and atomic CAS commands.
- Solved various specific cases ranging from a PTIME algorithm for the simplest case to a PSPACE algorithm that uses reduction to a 1-safe Petri Net.

Liveness verification of Broadcast Networks   Summer 2019
Prof Roland Meyer, TU Braunschweig, Germany

- Implemented a polynomial time algorithm for Liveness Verification in Broadcast Networks based on Kleene fixed point iteration.
- Developed and implemented a generalization for the symbolic case.

TEACHING & **MENTORSHIP**	**Institute Student Mentor**	2020 - 2021

TEACHING &
MENTORSHIP

Institute Student Mentor   2020 - 2021
Institute Student Mentorship Program, IIT Bombay
- Selected via a rigorous procedure of essays, peer reviews and interviews.
- Mentored 14 first-year students and helped them adjust to various aspects of college life. Guided them to make the most of remote learning during various hardships caused by COVID-19.

Senior Department Academic Mentor   2019 - 2021
Department Academic Mentorship Program, CSE IIT Bombay
- Guided 9 second-year students in making informed academic decisions like choosing coursework. Helped disseminate important academic information as well as gather feedback for the department.

Teaching Assistant   Fall 2018, Fall 2019, Spring 2021
Logic for CS(Minor), Quantum Physics and Cryptography course
- Conducted regular tutorial sessions with extensive problem and doubt solving.
- Responsible for checking of exam papers and gathering feedback as required.

COURSE
PROJECTS

Flash/No-Flash photography   Fall 2019
Prof Ajit Rajwade, IIT Bombay, India
- Explored methods from a paper presented in **SIGGRAPH 2004** to enhance photographs using flash and no-flash counterparts.
- Implemented image denoising, detail transfer, white balancing, continuous flash and red-eye removal techniques to get the best possible image.

Protection Against Sophisticated DOS attacks   Spring 2019
Prof Bernard Menezes, IIT Bombay, India
- Built a profiler for C++ servers that can analyse runtime information to detect anomalies and also interrupt requests in case of malicious activity.
- Based on a paper presented in **USENIX Security Symposium 2018**, created a 2-layer filtering system to minimise false positives.

OLYMPIADS &
FELLOWSHIPS
- Awarded Gold medal-National Top 35 and Certificate of Merit in **InChO**.
- Among the top 1% in National Standard Examination of Physics (**NSEP**).
- Awarded Kishore Vaigyanik Protsahan Yojana (**KVPY**) fellowship from Govt. of India with an All India Rank of 24.
- Received National Talent Search Scholarship (**NTSE**) by Govt. of India.

KEY COURSES   Virtualization and Cloud Computing, Database and Information Systems, Advanced Network Security and Cryptography, Logic and Automata theory, Advanced Machine Learning, Digital Image Processing, Blockchains and Smart Contracts, Data structures and Algorithms, Quantum Information and Computing,

EXTRA-
CURRICULARS
- Lead to an article in the Fresher Newsletter published by Student Media body.
- Mentor to 4 students in *Season of Code* in building a POP3-like architecture.
- Built a semi-autonomous arduino controlled bot that could navigate a maze using PID control algorithm on various sensor readings.
- Completed a one-year NSO-Volleyball course and represented Hostel-9 in Inter-Hostel Swimming General Championship.