

Puneet Gill

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Education

- 2018 – 2020 **M.A.Sc. in Computer Engineering**, *University of Waterloo*, Canada.
Advisors: Mahesh V. Tripunitara, Werner M. Dietl
Ripple Graduate Fellowship \$25k (2020)
University of Waterloo Graduate Scholarship (2018-2020)
- 2012 – 2017 **B.A.Sc. in Electrical Engineering**, *University of Waterloo*, Canada.

Research and Teaching Experience

- Sept. 2019 – **Teaching Assistant**, *ECE 606 (Algorithms)*, University of Waterloo.
Dec. 2019 Responsible for marking weekly assignments and proctoring exam.
- Jan. 2019 – **Teaching Assistant**, *ECE 351 (Compilers)*, University of Waterloo.
Apr. 2019 Responsible for conducting labs every week, occasionally running the tutorials and marking the exams.
- Summer 2017 **Undergraduate Research**, *University of Waterloo*.
Advisors: Mahesh V. Tripunitara
Analyzed the role of semantics in writing Access control lists in OpenLDAP. Contributed to the project by coming up with an efficient way to determining the access control matrix, comparing it with the existing solution, *slapacl*. Wrote a final report on my experiments and results.

Industry Experience

- Sept. 2017 – **Software Engineer**, *Amazon*.
Aug. 2018 Worked in the flexible labor scheduling team, responsible for working on an integer linear programming problem constituting developing weekly schedules for over 30000 associates around the globe.
- Fall 2016 **Software Engineer Intern**, *Amazon*.
Worked on implementing a recommendation strategy service for Amazon's search results for B2B customers.
- Fall 2015 **Backend Engineer Intern**, *Rave*.
Wrote a library for sending GCM XMPP notifications in Java with a throughput of 30000 messages/second.
Optimized the server to be able support 3000 users in a single chat.
Optimized the server to be able support 3K users in a single mesh(chat).
Reduced latency in user join times due to large number of users in a single chat from 8 seconds to 30 milliseconds.
- Summer 2015 **Mobile Engineer Intern**, *Rave*.
Implemented core features of the app (100K - 500K downloads): sync engine algorithm, voting & VoIP.

Fall 2014 **Software Engineer Intern**, *Pivotal Labs*.

Worked on the multi user chat and indoor mapping for Carnival Cruise android app (100K-500K downloads) and used Robolectric for tests.

Winter 2014 **Software Engineer Intern**, *Citigroup Inc.*

Summer 2013 **Software Engineer Intern**, *Citigroup Inc.*

Courses

Masters Applied Cryptography (A. Menezes), Design and Analysis of Algorithms (A. Lubiw), Software Testing, Quality Assurance, and Maintenance (W. Dietl), Stochastic Processes (W. Zhuang)

Bachelors Adaptive Algorithms (O. Basir), Algorithm Design and Analysis (S. Smith), Compilers (D. Rayside), Computer Security (M. Tripunitara), Computer Networks (M. Tripunitara), Robotics & Controls (D. Kubic), Analog Communications (P. Mitran), Analog Controls (S. Smith), Digital Computers (G. Agnew)

Projects

Masters Algorithms for Elliptic Curve Discrete Logarithm Problem: Implemented Shank's algorithm, Pollard's rho and lambda methods for solving Elliptic Curve Discrete Logarithm Problem (Paper by: Paul C. van Oorschot and Michael J. Wiener)

Symbolic Execution Engine and Dafny program verification: Implemented a Symbolic Execution Engine for a WHILE language. Wrote dafny programs for various algorithms and their verification pre and post conditions.

Bachelors Peer-to-Peer Content Management System: Supported functions of adding and removal of peers and content to the peers while maintaining a load balancing condition.

Music Player: Implemented a music player on Altera DE2 FPGA to play .wav files in different play modes (half speed, double speed, reverse, one channel delayed).

Computer Security Labs: Implemented various software vulnerability attacks.

Skills

Languages Java, Python, C/C++, Go, Shell, Javascript, SQL, Matlab, ARM Assembly

Technologies Amazon Web Services, Android, Docker, Kubernetes, Apache Kafka