Palak Jain

palakj@bu.edu | thepalakjain.com | (contact me for phone number/address)

EDUCATION

Boston University — September 2019 - now
3rd year PhD student — *Boston, MA, USA*

- Advisor: Adam Smith
- Topics: Cryptography, Differential Privacy
- GPA: 3.8

Reed College — August 2014 - May 2018
Bachelor of Arts (B.A.) — *Portland, OR, USA*

- GPA in computer science: 3.8
- Commendation for Excellence

  For academic performance during the 2017-2018 academic year.
- Senior Thesis: Oblivious Data Structures

  Expository Thesis starting from basics and going through different oblivious RAM constructions (Square-root ORAM, Heirarchical ORAM, Tree ORAM, Path ORAM). Ending with an explanation of Gentry at al.'s(PETS'13) efficient oblivious binary search algorithm and how it inspired the oblivious data structure constructions of Wang et al.(CCS'14) and Keller et al.(AsiaCrypt'14)

(RECENT) AWARDS, GRANTS, FELLOWSHIPS

(Grant) Boston University Center for Antiracist Research — 2021- 2022

- We won a grant from the BU Center for Antiracist Research to study the impacts of the US Census' new disclosure avoidance system.
- Projects: (1) Studying the way in which the disclosure avoidance system will impact data users from historically marginalized communities. (2) Studying the effects of the disclosure avoidance system on voting rights acts and litigation.

CS Excellence Award for Teaching at Boston University — Spring 2021

- Course: Network Security
- Instructor of Record: Gabriel Kaptchuk
  * Enrollment of 50 students during a hybrid semester
  * Course had to be fully revamped due to creation of new lower-level course that covered much of the previously covered material

Chair's Fellowship at Boston University — 2019-2024

- Selective award made to a small number of admitted PhD students based on particularly high potential and promise.

PROFESSIONAL SERVICE

Subreviews:

- **IEEE S&P Shadow PC** 2020
- **CSF** 2020
- **Usenix** 2021
- **ALT** 2022

Boston Area Differential Privacy Student Reading Group:

- Satchit Sivakumar and I established a Boston area differential privacy reading group with students from Boston University and Northeastern University.
- Co-organized the reading group with Satchit Sivakumar for two semesters (January 2021 - January 2022).

Research Projects

The Price of Differential Privacy under Continual Observation October 2020 - Dec 2021
Palak Jain, Sofya Raskhodnikova, Satchit Sivakumar, Adam Smith *in submission PODS 2022*

Link: https://arxiv.org/abs/2112.00828

Universally Composable End-to-End Secure Messaging November 2019 - in progress
Ran Canetti, Palak Jain, Marika Swanberg, Mayank Varia

Link: coming soon.

Teaching

Network Security (Teaching Fellow) Jan 2021 - May 2021
*Recipient of the **CS Excellence Award for Teaching** at Boston University for this course*
- Instructor of Record: Gabriel Kaptchuk
- Designed a *cryptography review handout*.
- Designed a cryptography review assignment, and one on Signal's double ratchet algorithm.
- Designed and taught weekly lab sessions on cryptography review, ARP, BGP, Signatures, Certificates, TLS, Tor, and Signal's double ratchet algorithm.
- Transcribed lecture notes for each lecture to aid students in learning in the new hybrid environment.

Network Security (Teaching Fellow) Jan 2022 - present
Instructor of Record: Gabriel Kaptchuk

Coursework

Graduate Courses
Boston University
- Private Data Analysis
- Network Security
- Randomized Computation
- Applied Cryptography
- Complexity
- Advanced Cryptography: Multiparty Computation
- Formal Methods in Security and Privacy
- Graduate Networks

Undergraduate Courses
Reed College
- Linear Algebra
- Abstract Algebra
- Number Theory
- Computability and Complexity (A+)
- Cryptography (A+)
- Probability and Statistics
- Computer Systems
- Approximation Algorithms (A+)
- Algorithms and Data Structures
- Real Analysis
- Introduction to Mathematical Analysis
- Multivariable Calculus
- Knot Theory (A+)
- Topology

(Past) Awards, Grants, Fellowships

Davis United World College (UWC) Scholars Program
2014- 2018
- Prestigious four-year scholarship awarded to students with outstanding academic abilities and a capacity to build relationships with people from different backgrounds.

Reed College Science Research Fellowship
May 2017 – Aug 2017
- For studying composition of protocols for rational adversaries with professors Adam Groce and Vassilis Zikas and students Mark Schultz and Ira Globus-Harris.
- **poster:** *link*

Reed College Mathematics Travel Fellowship
2017
- For attending CRYPTO 2017

Reed College Science Research Fellowship
May 2016 – Aug 2016
- For studying Linear Systems of Divisors on Networks with Prof. David Perkinson and students Sarah Brauner, Forrest Glebe, Gopal Goel. More details about the problem can be found in *this book*.
- **poster:** *link*

Technical Skills

Languages: LaTeX, R, Python, C, ReactJS, css, html5
Applications: Adobe Photoshop, Adobe Illustrator, Adobe XD, Github

Industry Experience

Tinystep
Feb 2019 – Jun 2019
Front End Developer
Bengaluru, KA, India
- Lead frontend developer for an app for teachers at Klay prep schools across India.

Go India Games
November 2018 – Oct 2019
Playtesting Lead
Bengaluru, KA, India
- Conducted sample playtests for other boards games to get a feel for how customers interact with instruction manuals in general.
- Worked closely with the game developers to write game instructions and check consistency of game rules.
- Organized the playtesting efforts for the board game Bharata 600 BC.

Reed Research Reactor
Aug 2015 – May 2018
Licensed Reactor Operator
Portland, OR, USA
- Licensed by the United States Nuclear Regulatory Commission following a year long training program.
- Conducted experiments with neutron activation analysis.
- Calibrated and performed maintenance on facility equipment and components.
- Conducted routine safety inspections and record keeping.
- Gave public tours.
- Trained reactor license candidates.

PALLAVINOPANY
May 2014 – Aug 2014
Graphic Design Intern at Pack of 2
Karnataka, India
- PALLAVINOPANY is a graphic design studio that specalizes in corporate identity and packaging design.
- Collaborated with team at daily brainstorming meetings for ongoing projects.
- Assisted in the creation of designs for ongoing projects, working closely with the artistic director.
- Researched and analysed appropriate design options for client requests, developed design inspiration boards for upcoming projects.
- Assisted with preparation for and attended client meetings.