Om Dipakbhai Thakkar

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EDUCATION

Ph.D., Computer Science 08/14 - 09/19
Boston University(BU), Boston, MA GPA 4.00/4.00
The Pennsylvania State University (Penn State), University Park, PA[1] GPA 3.97/4.00
Advisor: Dr. Adam Smith

B.Tech., Information and Communication Technology 07/10 - 05/14
Dhirubhai Ambani Institute (DA-IICT), Gujarat, India GPA 8.57/10.00

RESEARCH INTERESTS

Differential Privacy (DP), Private Machine Learning, and Adaptive Data Analysis.

PUBLICATIONS

Towards Practical Differentially Private Convex Optimization. *In S&P, 2019.*
Roger Iyengar, Joseph P. Near, Dawn Song, Om Thakkar, Abhradeep Thakurta and Lun Wang.

Model-Agnostic Private Learning. *In NeurIPS, 2018. (Accepted for an oral presentation)*
Raef Bassily, Om Thakkar, and Abhradeep Thakurta.

Differentially Private Matrix Completion Revisited. *In ICML, 2018. (Accepted for a long talk)*
Prateek Jain, Om Thakkar, and Abhradeep Thakurta.

Max-Information, Differential Privacy, and Post-Selection Hypothesis Testing. *In FOCS, 2016.*
Ryan Rogers, Aaron Roth, Adam Smith, and Om Thakkar.

WORK EXPERIENCE

Software Engineering Intern, Google, Mountain View, CA 05/18 - 08/18
Worked with Úlfar Erlingsson on using adaptivity to improve DP Stochastic Gradient Descent. Empirically showed that the novel technique achieves the utility of the state-of-the-art with up to 30x speed-up in time.

Visiting Student Researcher, University of California, Berkeley, CA 08/17 - 12/17
Worked with Dr. Dawn Song on designing a practical DP optimization algorithm that works for all standard convex losses, can leverage any off-the-shelf optimizer, and has a competitive hyperparameter-free variant.

Software Engineering Intern, Google, Seattle, WA 05/17 - 08/17
Worked with Brendan McMahan on devising adaptive strategies for eliminating hyperparameter tuning for DP federated learning, achieving utility similar to systems with tuned hyperparameters.

Machine Learning Engineer (Intern), CoreOS Team, Apple, Cupertino, CA 05/16 - 08/16
Worked on designing a scalable general-purpose DP recommendation system based on collaborative filtering. Developed a model from scratch showing positive results.

[1] Transferred to BU in 01/18.

NOTABLE PROJECTS

Efficient Pattern Matching incorporating Modifications in a Genome 01/15 - 05/15
Guide: Dr. Paul Medvedev (Penn State) *Team Size - 2*
Constructed an algorithm for efficiently re-computing pattern matches in case of any modification in a genome, as well as constructed an appropriate data structure for storing occurrences of each pattern match.

Distributed Data Lookup in a Peer-to-Peer (P2P) File System 08/14 - 12/14
Guide: Dr. Guohong Cao (Penn State) *Team Size - 2*
Implemented a P2P file sharing system, and a distributed data lookup for it using TCP/IP.

TEACHING EXPERIENCE

Teaching Assistant, CMPSC 465 Data Structures and Algorithms, Penn State 01/17 - 05/17
Teaching Assistant, CMPSC 360 Discrete Mathematics for Computer Science, Penn State 01/15 - 05/15
Teaching Assistant, IT 114 Object Oriented Programming, DA-IICT 01/14 - 05/14
Teaching Assistant, IT 105 Introduction to Programming, DA-IICT 08/13 - 12/13

POSITIONS OF RESPONSIBILITY

Webmaster of the Theory group webpage, Penn State 08/14 - 05/17
Captain of the Cricket team, DA-IICT 04/13 - 04/14
Vice-Chairperson, IEEE Student Branch, DA-IICT 01/13 - 11/13
Treasurer, IEEE Student Branch, DA-IICT 07/12 - 12/12

PROFESSIONAL SERVICES

Reviewer for JPC 2019, T-IFS 2019, JMLR 2018.

Reviewer for NIST's The Unlinkable Data Challenge: Advancing Methods in Differential Privacy.

External reviewer for NeurIPS 2019, IJCAI 2019, CCS (2018-2019), PETS (2017-2019), S&P (2017, 2019), ICML 2018, STOC (2016, 2018), ACSAC 2017, FOCS 2017, WABI 2015.

AWARDS AND ACHIEVEMENTS

Received travel awards for S&P 2019, NeurIPS 2018, ICML 2018, FOCS 2014, and a GSO Conference Travel Grant for Summer 2018.

Ranked 127th in the ACM - Inter Collegiate Programming Contest, Asia Amritapuri Region, 2012.

Ranked in top 500 in the IEEEXtreme Programming Competition (editions 4.0, and 5.0).

Won state- and district-level yoga competitions, and participated at national and international levels.

GRADUATE COURSEWORK

Approximation Algorithms, Graphs of Bounded Widths, Probabilistic Algorithms, Computational Complexity, Cryptography, Error Correcting Codes, Mathematical Logic, Mathematical Neuroscience, Sublinear Algorithms, Algorithms in Bioinformatics, Foundations of Data Privacy, Algorithm Design and Analysis, Distributed Systems.