DRAVYANSH SHARMA

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EDUCATION

Carnegie Mellon University, Pittsburgh *2019 - present*
PhD, Computer Science Department; Prof. Maria-Florina (Nina) Balcan

Indian Institute of Technology Delhi, New Delhi *2011 - 2015*
Bachelor of Technology in Computer Science and Engineering; GPA: 9.8/10 (first in class)

EMPLOYMENT

Online learning with Bandit Feedback
Google Research, Bengaluru *Summer 2022*
◇ Online hyperparameter tuning in a bandit feedback setting (in progress).

Senior Software Engineer, Speech Recognition & Speech Synthesis
Google (London, Mountain View) *2015 - 2019*
◇ Improved latency and reduced embedded size of Google text-to-speech (TTS) component across ∼40 languages, improving quality of over billion daily queries.
◇ Improvements to infrastructure and quality of pronunciation models used by Google's ASR (automatic speech recognition) and TTS systems.
◇ Research on relevant problems in natural language processing (published at Interspeech).
◇ Promoted with *Superb* (top 4-5% across Google) rating twice within first three years.
◇ Engineering Manager experience of over a year (managed three engineers and two interns).

Information-theoretic Optimal Sensor Placement
Microsoft Research, Redmond *Summer 2014*
◇ Designed, analyzed and tested new efficient and scalable active learning algorithms for optimal deployment of sensors. Obtained improved analytical bounds for performance guarantees of the greedy algorithm (published at ICML 2015).

Exact and Approximate Learning of Finite Automata
Max Planck Institute for Software Systems, Germany *Summer 2013*
◇ Worked with Dr. Rupak Majumdar (scientific director, MPI-SWS) on design of black box algorithms for characterizing the states of finite and linear automata.

SELECTED PUBLICATIONS (⋆ indicates alphabetical author list)

⋆ Balcan, M. F., Khodak, M., Sharma, D., & Talwalkar A. *Provably tuning the ElasticNet across instances.* NeurIPS 2022 (to appear).

⋆ Balcan, M. F., Blum, A., Sharma, D. & Zhang, H. *On the Power of Abstention and Data-Driven Decision Making for Adversarial Robustness.* JMLR 2022 (to appear); ICLR 2022 (Oral, SRML workshop).

⋆ Balcan, M. F., Blum, A., Hanneke, S. & Sharma, D. *Robustly-reliable learners under poisoning attacks.* COLT 2022.

⋆ Balcan, M. F. & Sharma, D. *Data-driven semi-supervised learning.* NeurIPS 2021. (Oral, $< 1\%$)

⋆ Balcan, M. F., Khodak, M., Sharma, D., & Talwalkar A. *Learning-to-learn non-convex piecewise-Lipschitz functions.* NeurIPS 2021.

⋆ Balcan, M. F., Dick, T., & Sharma, D. *Learning piecewise Lipschitz functions in changing environments.* AISTATS 2020. (Awarded Best Poster at YinzOR.)

◇ Sharma D., Wilson M., & Bruguier A. *Better morphology prediction for better speech systems.* Proc. Interspeech 2019 (2019).

◇ Bruguier A., Bakhtin A., & Sharma D. *Dictionary Augmented Sequence-to-Sequence Neural Network for Grapheme to Phoneme Prediction.* Proc. Interspeech 2018 (2018): 3733-3737.

◇ Sharma D., Kapoor A., & Deshpande A. (2015, June). *On greedy maximization of entropy.* International Conference on Machine Learning (ICML 2015), 1330-1338.

TALKS

◇ *Provably tuning the ElasticNet across instances.* CMU Theory Lunch, Fall 2022.

◇ *Near-optimal robustness for instance targeted poisoning and online meta-learning.* TTIC, Fall 2022.

◇ *Data-driven semi-supervised learning.* Scalable Algorithms for Semi-supervised and Unsupervised Learning Workshop 2021 at Google; CMU Theory Lunch; NeurIPS 2021 Oral.

◇ *On the power of abstention and data-driven decision making for adversarial robustness.* CMU Theory Lunch, Spring 2021.

◇ *Learning piecewise Lipschitz functions in changing environments.* CMU AI Seminar, AISTATS 2020.

HONORS AND ACHIEVEMENTS

Scholarships and Awards

◇ First place at YinzOR 2019 (OR conference with participation from top US universities) poster competition for poster titled "Online optimization of piecewise Lipschitz functions in changing environments".

◇ Invited (among 200 researchers worldwide) to attend the 7^{th} Heidelberg Laureate Forum 2019.

◇ Sole awardee of the Kalpana Chawla Scholarship 2014 for scientific contributions in the class of over 850, by IIT Delhi.

◇ Awarded fellowship by Max-Planck-Institute for Software Systems (Kaiserslautern, Germany, 2013).

◇ One in 205 students across India to be awarded the Kishore Vaigyanik Protsahan Yojana (KVPY) scholarship 2010 for research aptitude by Department of Science and Technology, Government of India.

Academic and Entrance Tests

◇ Ranked first (highest GPA) in Computer Science and Engineering Department class of 2015.

◇ Awarded second best all-rounder among all graduating students (across all departments) in 2015.

◇ Secured All India Rank 7 in IIT-JEE (Joint Entrance Examination) 2011 among $500,000$ applicants.

◇ Twice invited and honored as the Prime Minister's guest at Republic Day of India (2012, 2010) by the Indian Ministry of Education; All India first (second resp.) among junior college (high school) graduates.

National and International Olympiads

◇ Won Gold Medal at the 43^{rd} International Chemistry Olympiad (IChO-2011) held at Ankara, Turkey.

◇ Among 35 students from all over India to be selected to attend the Orientation-cum-Selection Camp for the International Olympiad of Astronomy and Astrophysics (IOAA) 2011.

◇ Obtained State Ranks 1 and 3 in Regional Mathematics Olympiad 2010 and 2009.

TECHNICAL SKILLS

Proficient: C++, Python, Bash, AWS. *Experienced*: Java, SQL, MATLAB, FE/Javascript.

COURSES

Graduate (CMU): Algorithms, Artifical Intelligence, Parameterized Complexity, Data Mining
Undergraduate (IIT Delhi): Artifical Intelligence, Machine Learning, Analysis and Design of Algorithms, Theory of Computation, Computational Geometry, Discrete Mathematics, Game Theory, Data Structures, Information Theory, Logic for Computer Science, Operating Systems, Computer Networks, Programming Languages, Cryptography and Computer Security, Computer Architecture

SERVICE

Reviewer: TPAMI 2019-20; JMLR 2022; NeurIPS 2020-22; AAAI 2021-22; ALT 2021; ICLR 2022; AISTATS 2022.
Organized CMU Learning Theory reading group (Spring 2021, Fall 2021, Spring 2022, Fall 2022).