Mo Tiwari

mohittiwarinyc@gmail.com | (914) 482 – 5321
motiwari.com | U.S. Citizen

EDUCATION:

Stanford University, Stanford, CA — ***GPA: 4.2+*** — 2017 – Present
Ph.D. in Computer Science
Advisor: Sebastian Thrun
*Received over **$700,000** in fellowships and **$150,000** in grants*

M.S. in Computer Science (completed during Ph.D.) — ***GPA: 4.2+*** — June 2019

California Institute of Technology, Pasadena, CA — ***GPA: 4.0+*** — 2010 – 2013
*Top **5%** of Graduating Class*

B.S. in Mathematics with Honors — ***GPA: 4.0+*** — June 2013
B.S. in Physics with Honors — ***GPA: 4.0+*** — June 2013

Columbia University – **Columbia College**, New York, NY — ***GPA: 4.0+*** — 2009 – 2010

EXPERIENCE:

SOFTWARE ENGINEER, TECHNICAL LEAD – FACEBOOK, INC. 2015 – 2017

- Technical lead of the team building ThreatExchange, Facebook's platform for sharing cybersecurity information
- Led product and feature development through 5 major releases that grew the number of enterprise customers from 92 to 500+
- Managed 3 interns who received and accepted fulltime offers

SECURITY RESEARCH SCIENTIST – EXPANSE, INC. (acquired for $800MM) 2014 – 2015

- As fifth fulltime employee, performed the first systematic, continuous, and Internet-scale capture and analysis of device data and security vulnerabilities
- Built backend and frontend infrastructure to help analysts understand terabytes of prostitution advertisements and uncover human trafficking
- Work indirectly led to arrests of human traffickers and rescue of victims

RESEARCHER – DRW TRADING GROUP Summer 2013

- Created valuation models for various financial instruments, such as interest rate swaps and swaptions

RESEARCHER – JOHN PRESKILL GROUP 2011 – 2012

- Proved that a certain class of quantum systems would never function as a form of quantum storage, eliminating their viability in a quantum computer
- Advised by Prof. John Preskill, Dr. Spiros Michalakis, Dr. Jeongwan Haah at Caltech

RESEARCHER – LARGE HADRON COLLIDER (LHC) Summer 2010

- Analyzed the first data from the Compact Muon Solenoid (CMS) experiment at the LHC, where the Higgs Boson was later discovered
- Discovered and corrected experimental defects by analyzing Missing Transverse Energy to calibrate experimental setups
- Later received admission to the Ph.D. program in Physics at MIT to continue research on this experiment

RESEARCHER – YORKTOWN HIGH SCHOOL 2007 – 2009

- Developed an assistive aid to help patients with physical disabilities complete exercises
- Device led to an 80% increase in patients' exercise completion rate and a 34% decrease in recovery time
- Won third place in category, internationally, at Intel ISEF 2009

PUBLICATIONS:

- Yoshua Bengio, Tristan Deleu, Edward Hu, Salem Lahlou, **Mo Tiwari**, Emmanuel Bengio. "GFlowNet Foundations." https://arxiv.org/abs/2111.09266. *In submission.*
- Ali Mohsen, **Mo Tiwari**. "Image Compression and Classification Using Qubits and Quantum Deep Learning." https://arxiv.org/abs/2110.05476. *In submission.*
- **Mo Tiwari** et al. "Classification of Bacterial and Fungal Infectious Keratitis Images Using Deep Learning." *In submission.*
- **Mo Tiwari**, Martin Zhang, James Mayclin, Sebastian Thrun, Chris Piech, Ilan Shomorony. "BanditPAM: Almost Linear Time *k*-medoids Clustering via Multi-Armed Bandits." *Neural Information Processing Systems* ***(NeurIPS)*** *2020.*
- **Mo Tiwari** et al. "Differentiation of Active Corneal Infections from Healed Scars Using Deep Learning." *Journal paper in Ophthalmology*. ***Best Poster Award*** *at associated conference, American Academy of Ophthalmology* ***(AAO)*** *2020***.**
- Serhat Arslan, **Mo Tiwari**, Chris Piech. "Using Google Search Trends to Estimate Global Patterns in Learning." *ACM Learning @ Scale* ***(L@S)*** *2020.*

OPEN SOURCE CONTRIBUTIONS:

- **BanditPAM:** https://github.com/ThrunGroup/BanditPAM. A high-performance Python package, written in C++, that implements the algorithm from our NeurIPS 2020 paper and is `pip`-installable via `pip install banditpam`. **Primary author, 200+ stars.**
- **BIG-Bench:** https://github.com/google/BIG-bench. A set of benchmark tasks meant to probe the capabilities of large language models.
- **NL-Augmenter:** https://github.com/GEM-benchmark/NL-Augmenter. A set of data augmentations and filters for natural language data.

TEACHING AND MENTORSHIP:

- ***Course Assistant for Client-Side Technologies (CS193C)*:** Graded assignments, provided feedback, and answered questions for over 100 students each quarter during the summers of 2020 and 2021.
- **EDGE Mentor:** Mentored three early Ph.D. students in Computer Science at Stanford University.
- **Ph.D. Student Mentor:** informally mentored approximately a dozen undergraduate and M.S. students at Stanford University. Upward performance reviews available upon request.

INVITED TALKS:

- **Highlights of Algorithms 2021 (HALG21) Conference***: "BanditPAM: Almost Linear Time k-Medoids Clustering via Multi-Armed Bandits."
- **U.S. Food and Drug Administration*:** "An Introduction to Clustering, Multi-armed Bandits, and BanditPAM."
- **Twitch*:** "Novel Data Augmentation, Multi-Armed Bandits, and more: New Machine Learning Techniques for Twitch Safety."
- **C3.ai:** "*k*-medoids Clustering and Multimodal Data Augmentation."
- **Facebook:** "ThreatExchange v2.8 Webinar." Joint presentation. https://www.youtube.com/watch?v=SVVC4ZLYHmk
- **Microsoft Security Research Alliance:** "Tracking Advanced Persistent Threats with ThreatExchange." Joint presentation.

** denotes a virtual talk*

ACADEMIC HONORS:

- Stanford Interdisciplinary Graduate Fellowship (SIGF) 2020 – 2023
  - Full funding for the Ph.D. for 3 years
  - 1 of 33 graduate student awardees, University-wide, in cohort
  - 1 of 295 awardees since award inception in 2008
- J.P. Morgan AI Research Ph.D. Fellowship 2020
- Oak Ridge Institute for Science and Education (ORISE) Fellowship 2019 – Present
- UnifyID Fellow (Declined) 2018
- Pear VC Fellow 2017 – Present
- NSF Graduate Research Fellowship Program Honorable Mention 2013
- Caltech Summer Undergraduate Research Fellowship (SURF) 2011, 2012
- IBM T.J. Watson Memorial Scholarship 2009 – 2012
- Caltech - San Pietro Travel Prize Recipient 2011
- I. I. Rabi Scholarship 2009 – 2010
- Intel International Science and Engineering Fair (ISEF) - Third place 2009