

Mo Tiwari

mohittiwari@stanford.edu | (415) 234 – 3187
motiwari.com | U.S. Citizen



EDUCATION:

Stanford University , Stanford, CA <u>Ph.D.</u> in Computer Science <i>Advisor: Sebastian Thrun</i> <i>Received over \$700,000 in fellowships and \$150,000 in grants</i>	GPA: 4.2+	2017 – Present
<u>M.S.</u> in Computer Science (completed during Ph.D.)	GPA: 4.2+	June 2019
California Institute of Technology , Pasadena, CA <i>Top 5% of Graduating Class</i>	GPA: 4.0+	2010 – 2013
<u>B.S.</u> in Mathematics with Honors	GPA: 4.0+	June 2013
<u>B.S.</u> 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
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• Created valuation models for various financial instruments, such as interest rate swaps and swaptions	
RESEARCHER – JOHN PRESKILL GROUP	2011 – 2012
<ul style="list-style-type: none">• 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