HANS WILLIAM ALEXANDER HANLEY

Email: hhanley@cs.stanford.edu
Homepage: www.hanshanley.com
Blog: www.themarginoferror.com

Education

PhD Computer Science, Stanford University, (2025 Expected), GPA: 4.031
National Science Foundation Graduate Fellow
Stanford EDGE Doctoral Fellow
PI: Professor Zakir Durumeric

MSc Statistical Science, University of Oxford, 2020, Distinction (Highest Honors)
Daniel M. Sachs Class of 1960 Graduating Scholarship at Worcester College
PI: Professor Garrett Morris

MSc Advanced Computer Science, University of Oxford, 2019, Distinction (Highest Honors)
Daniel M. Sachs Class of 1960 Graduating Scholarship at Worcester College
PI: Post Doc Riccardo Spolaor, Professor Ivan Martinovic

BSE Electrical Engineering, Princeton University, 2018, Highest Honors, GPA: 3.982
Concentration: Information Security and Privacy
Minors: Applications of Computing, Robotics and Intelligent Systems
PI: Professor Prateek Mittal

Proficient Languages: Java, Python, C, Go, R, Git, TensorFlow, PyTorch, Huggingface

Experienced Languages: Mandarin Chinese (HSK 4), MATLAB, C#, C++

Publications In Submission

1. **Specious Sites: Tracking the Spread and Sway of Spurious News Stories at Scale**
Hans Hanley, Deepak Kumar, Zakir Durumeric
In Submission to 44th IEEE Symposium on Security and Privacy (Oakland 2023), May 2023.

2. **Twits, Toxic Tweets, and Tribal Tendencies: Trends in Politically Polarized Posts on Twitter**
Hans Hanley, Deepak Kumar, Zakir Durumeric
In Submission to 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW 2023), October 2023.

3. **A Golden Age: Conspiracy Theories' Relationship with Misinformation Outlets, News Media, and the Wider Internet**
Hans Hanley, Deepak Kumar, Zakir Durumeric
In Submission to 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW 2023), October 2023.

4. **Sub-Standards and Mal-Practices: Misinformation's Role in Insular, Polarized, and Toxic Interactions**
   Hans Hanley and Zakir Durumeric
   In Submission to 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW 2023), October 2023.

5. **Partial Mobilization: Tracking Multilingual Information Flows Amongst Russian Media Outlets and Telegram**
   Hans Hanley and Zakir Durumeric
   In Submission to The 2023 ACM Web Conference (The Web Conference 2023), May 2023.

Conference Publications

6. **Happenstance: Utilizing Semantic Search to Track Russian State Media Narratives about the Russo-Ukrainian War On Reddit**
   Hans Hanley, Deepak Kumar, Zakir Durumeric
   To Appear: In 17th International AAAI International Conference on Web and Social Media (ICWSM 2023), June 2023.

7. **"A Special Operation": A Quantitative Approach to Dissecting and Comparing Different Media Ecosystems' Coverage of the Russo-Ukrainian War**
   Hans Hanley, Deepak Kumar, Zakir Durumeric
   To Appear: In 17th International AAAI International Conference on Web and Social Media (ICWSM 2023), June 2023.

8. **No Calm in the Storm: Investigation QAnon Website Relationships**
   Hans Hanley, Deepak Kumar, Zakir Durumeric
   In 16th International AAAI Conference on Web and Social Media (ICWSM 2022). June 2022.

9. **DPSelet: A Differential Privacy Based Guard Selection Algorithm for Tor**
   Hans Hanley, Yixin Sun, Sameer Wagh, and Prateek Mittal.
   In 19th Privacy Enhancing Technologies Symposium (2) (POPETS 2019), July 2019.

Dissertations

GENerateZ: Automatic De Novo Design of Anticancer Drugs using Transcriptomic Data, Genetic Algorithms, and Variational Autoencoders
Hans Hanley, Garett Morris
University of Oxford, MSc Statistical Science Masters Thesis

PROMISE: Provably RObust Malware detectIon uSing diffErential privacy
Hans Hanley, Riccardo Spolaor, Ivan Martinovic
University of Oxford, MSc Advanced Computer Science Masters Thesis

DPSelet: A Differential Privacy Based Guard Selection Algorithm for Tor
Hans Hanley, Yixin Sun, Sameer Wagh, and Prateek Mittal
Princeton University, BSE Electrical Engineering Undergraduate Thesis

News Articles

New COVID-19 conspiracy theories gain traction as old ones re-emerge
Hans Hanley
Atlantic Council Digital Forensic Research Lab

Misinformation regarding France's COVID-19 "health passes" spread on Twitter
Hans Hanley
Atlantic Council Digital Forensic Research Lab

Iranian social media exploit US-based conspiracies regarding USS Liberty incident
Hans Hanley and Alyssa Kann
Atlantic Council Digital Forensic Research Lab

China weaponizes discovery of graves at Canadian residential schools to avoid Xinjiang criticism
Hans Hanley
Atlantic Council Digital Forensic Research Lab

Pro-Kremlin Media echo Chinese outlets that COVID lab leak theory is a U.S. disinfo campaign
Hans Hanley
Atlantic Council Digital Forensic Research Lab

Iranian accounts promote anti-Israel hashtags in the wake of the Israel-Hamas war
Hans Hanley
Atlantic Council Digital Forensic Research Lab

Nigerian Twitter users flock to VPNs amid dubious legal threats
Jean Le Roux and Hans Hanley
Disinfo Africa & Atlantic Council Digital Forensic Research Lab

Professional Experience

Atlantic Council, Summer 2021
Digital Forensics Research Lab Research Intern, Washington D.C.

- Wrote and performed research for seven separate blog posts for the DFRLab:
- New COVID-19 conspiracy theories gain traction as old ones re-emerge
- Misinformation regarding France's COVID-19 "health passes" spread on Twitter
- Iranian social media exploit US-based conspiracies regarding USS Liberty incident
- China weaponizes discovery of graves at Canadian residential schools to avoid Xinjiang criticism
- Pro-Kremlin Media echo Chinese outlets that COVID lab leak theory is a U.S. disinfo campaign
- Iranian accounts promote anti-Israel hashtags in the wake of the Israel-Hamas war
- Nigerian Twitter users flock to VPNs amid dubious legal threats

Microsoft Software Engineering Intern, Summer 2018
Microsoft Business Applications Group Data Engine Team Software Intern, Seattle, WA

- Implemented a new framework in C# for Microsoft Business Application Group's mobile offline synchronization tool allowing the tool to scale more efficiently to 2x the number of users while reducing synchronizing time by 75%.

- Tested newly designed framework by utilizing 7 unique load and stress tests on a 30 server scale group to ensure the robustness of the implementation.
- Created concurrent row versioning feature across multiple servers for use in the mobile offline synchronization tool allowing more efficient data retrieval.

Google Software Engineering Intern, Summer 2017
Google Gmail Security Team Software Intern, Sunnyvale, California
- Designed and implemented a new security feature for Gmail Android to analyze outgoing email addresses and reduce user vulnerability.
- Implemented client security logic to decrease client requests' latency and bandwidth for processing recipient addresses to the Gmail backend server.
- Refactored and streamlined Gmail frontend and backend code to improve reliability and readability of code analyzing outgoing recipient addresses.

Google Engineering Practicum, Summer 2016
Google Docs and Drive Security Team Software Intern, New York, NY
- Implemented an action executor in Java for the Google Sheets API v4 for randomized end-to-end security software, expanding test coverage of authorization functionality to cover critical new flows for upcoming product launches.
- Contributed 52 changes to the Google CodeBase including implementing 37 scripted unit tests and 55 integration tests for the 11 new features added through the Google Sheets API to the security software.
- Presented project to other Google employees within Google's Docs and Drive Team, giving a 25-minute talk about the features added, technical issues confronted, and solutions implemented.

National Science Foundation Research for Undergraduates (REU), Summer 2015
Undergraduate Researcher, Texas Tech, Lubbock, TX
- Contributed code to the Texas Tech Answer Set Prolog (ASP) Declararitive Programming Language codebase to explore its applications to AI and cybersecurity
- Designed program in ASP utilizing the Generate and Test methodology to identify de-anonymization inference attack leakages in a k-anonymity security model framework
- Presented poster on ASP's functionality in different settings in conjunction with Dr. Rattikorn Hewett, PhD.

Top Gun Laparoscopic Internship, Summer 2014
Software Engineer Intern, Celebration, Florida
- Wrote engineering dossier for the Top Gun training instrument. Presented dossier to Douglas E. Ott MD, MBA Chief Medical Officer of Lexion Medical.
- Created 3 distinct programs in Java and the Wiimote user interface to teach laparoscopic surgeons and internists ultrasound techniques. Presented programs to Phillips Medical Systems for approval.
- Planned, in conjunction with James Rosser MD, the Dr. Oz Atlanta Health Expo: War on Heartburn 2014

Service and TAing

Stanford CS224N Natural Language Processing with Deep Learning, Winter 2023
Teaching Assistant, Stanford, CA
- Assisted Professor Chris Manning in instructing and designing assignments for CS224N

Stanford Center for Teaching and Learning, Fall 2020-Winter 2022
Engineering Learning Consultant, Stanford, CA

- Designed and implemented an algorithm to match Stanford undergraduates and graduates for the peer buddy accountability program.
- Created and presented 8 different workshops to instruct Stanford graduate students in skills ranging from Git, data presentation, and R, to basic statistical methodologies.
- Implemented a tool with D3 for the Stanford Center for Teaching and Learning to automatically log and visualize student attendance at workshops and study halls.

Princeton University Building Real Systems (ELE 302), Spring 2018
Teaching Assistant, Princeton, NJ

- Assisted Professors Jeffrey Thompson and Stephen Lyon in instructing Building Real Systems (Carlab: ELE 302).
- Guided students for 5 hours each week through various hardware and software projects including designing a PID speed-controlled car and implementing autonomous control for a car.

Princeton University McGraw Center for Teaching and Learning, Spring 2015-Spring 2018
Head Tutor, Princeton, NJ

- Tutored Physics: Mechanics/EM and Linear Algebra for 6.5 hours each week.
- Ran trainings for undergraduate Physics tutors on tutoring material and interfaced with other students during tutoring.

Princeton University Interactor, Fall 2017-Spring 2018
BSE Freshman Interactor

- Advised engineering freshmen on courses for the fall and spring semesters.
- Organized regular activities for freshman and faculty advisers. Introduced advisees to Princeton independent research projects and work for the School of Engineering.

Princeton University Splash, Spring 2017, Spring 2018
Instructor

- Taught class "Security and Privacy in the Digital Age" to New Jersey high school students. Class highlighted privacy tools including Ghostery, Virtual Privacy Networks, and Tor.

National Society of Black Engineers, Fall 2016-Fall 2017
President

- Organized and coordinated events with technical companies: Google, Deloitte, Airbnb, Microsoft, McKinsey, Capital One
- Implemented a mentorship program for Princeton freshmen and sophomore undergraduates.
- Designed website: nsbe.princeton.edu.

Princeton University Contemporary Logic Design (ELE 206), Fall 2017 & Fall 2016
Teaching Assistant, Princeton, NJ

- Assisted Professor Sharad Malik in instructing Contemporary Logic Design (ELE 206).
- Taught and debugged Verilog in two-hour sessions twice a week. Projects included the game Simon and a 16 RISC Instruction Set Architecture.
- Guided students in sessions for hardware programming on FPGAs.

Institute of Electrical and Electronics Engineering Princeton, Spring 2016-Spring 2017
Princeton Class of 2018 Representative

- Promoted and educated the Princeton community about electrical engineering careers and professions. Hosted events on campus to engage freshmen in the Electrical Engineering major.

Princeton College Counseling: Pace Center for Civic Engagement, Fall 2014-Spring 2016
Mentor

- Mentored and counseled Trenton high school juniors and seniors each week as they went through the college application process.

Invited Talks

Tracking the Influence of Russian State Media Narratives about the Russo-Ukrainian War
University of Florida, September 06, 2022, Gainesville, FL.

Tracking the Influence of Russian State Media Narratives about the Russo-Ukrainian War
University of Central Florida, August 16, 2022, Orlando, FL.

Happenstance: Utilizing Semantic Search to Track Russian State Media Narratives about the Russo-Ukrainian War on Reddit
Stanford Security Lunch, May 11, 2022, Stanford, CA.

Methods in the Madness: From QAnon to COVID-19, Conspiracy Theories' Relationship with Misinformation, the News Media, and the Wider Internet
Stanford Computer Forum. April 06, 2022. Stanford, CA

No Calm in the Storm
Stanford Security Lunch. September 08, 2021. Stanford, CA.

Why Graduate School? My experience in graduate school
Princeton University. June 29, 2021. Princeton, NJ.

Generate Z: Automatic De Novo Design of Anticancer Drugs using Transcriptomic Data, Genetic Algorithms, and Variational Autoencoders
3rd RSC-BMCS/RSC-CICAG Artificial Intelligence in Chemistry. September 01, 2020.London, UK

An Exploration of Contextualized Word Vectors for Sentiment Analysis
Oxford Computer Science Conference. April 01, 2019. Oxford, UK

DPSelect: A Differential Privacy Based Guard Relay Selection Algorithm for Tor
Oxford Computer Science Conference. April 01, 2019. Oxford, UK

Mentorship and Volunteering

Grad Mentor. Stanford CS Graduate-Undergraduate Mentorship Program (2022-2023)
Mentee: Jenny Duan

Stanford CURIS Mentor. Stanford's Computer Science summer undergraduate research program, (2022). Mentee: Jaylene Martinez

Reviewer. 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW 2023)

Reviewer. 17th International AAAI International Conference on Web and Social Media (ICWSM 2023)

Reviewer. 25th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW 2022)

Peer Reviewer. Stanford's Journal of Science, Tech, and Society (2022)

Grad Mentor. Stanford CS Graduate-Undergraduate Mentorship Program (2021-2022)
Mentee: Jaehyon Park

Interviewer. Daniel M. Sachs Global Scholarship (2021)

Grad Mentor. Stanford Undergraduate Research Association (SURA) Mentor (2021)
Mentee: Laura Jean Bauman

Representative. University of Oxford Worcester College Middle Common Room Black, Asian, and Minority Ethnic (BAME) Representative (2019-2020)

Selected Honors

Stanford Enhancing Diversity in Graduate Education Doctoral Fellowship Doctoral Fellowship
Fellowship offered to admitted Stanford doctoral students who contribute to the diversity of their field or degree program.

Daniel M. Sachs Class of 1960 Graduating Scholarship at Worcester College, Oxford University
Scholarship assures tenure of two years and a stipend sufficient for university and college tuition at Oxford.

National Science Foundation Graduate Research Fellowship
Fellowship provides 3 years of funding and a stipend for university study and research at Stanford University.

Princeton University Electrical Charles Ira Young Memorial Tablet & Medal
A memorial tablet to Charles Ira Young, class of 1883, has been placed in the Engineering Bldg. by friends of Mr. Young. The medal will be awarded each year to the student who excels in research in Electrical Engineering.

Princeton University SEAS James Hayes-Edgar Palmer Prize in Engineering
This is awarded annually to a senior in the School of Engineering and Applied Science who has manifested excellent scholarship, a marked capacity for leadership, and a promise of creative achievement in engineering.

Phi Beta Kappa Society, Beta Chapter of New Jersey, Princeton University
Awarded membership for exceptional academic achievement in the first three undergraduate years.

Princeton George B. Word Legacy Sophomore Prize for Academic Excellence
Received for achieving the highest distinction and recognition for sophomore academic work.

Princeton University Shapiro Award for Academic Excellence 2016
Received for achieving high academic excellence in sophomore academic work.

Princeton University Shapiro Award for Academic Excellence 2015
Received for achieving high academic excellence in freshman academic work.

Sigma Xi Scientific Research Society
Scientific Research Honor Society is a non-profit honor society for scientists and engineers. Members elect others on the basis of their research achievements or potential.

Tau Beta Pi: Engineering Honor Society

Oldest Engineering Honor Society in the United States. Membership awarded to students in the top 8th of engineering class

Hertz Foundation Graduate Fellowship Finalist 2018

One of only 40 candidates from a pool of 700 applicants selected as finalists after 1st round interviews.

McGraw Center for Teaching and Learning Excellent Tutor Award 2016

Awarded for excellent tutoring during the 2015- 2016 year.

Rhodes Scholarship Finalist

One of 14 students in the Birmingham District was invited to the final round of interviews for the Rhodes Scholarship.

Marshall Scholarship Finalist

One of 20 students in the Atlanta District was invited to the final round of interviews for the Marshall Scholarship.

Ron Brown CAPtain Scholar

Invitation-only professional development program for exceptional African American students. Awarded to the top 3% of applicants.

National Achievement Scholar for Academic Excellence 2014

National Merit Scholar for Academic Excellence 2014

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