

# HANS WILLIAM ALEXANDER HANLEY



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## Education

**PhD Computer Science, Stanford University, (2025 Expected), GPA: 4.031**

*Meta PhD Research Fellow: Computational Social Science*

*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. **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 2024), October 2023.

4. **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

5. ***A Golden Age: Conspiracy Theories' Relationship with Misinformation Outlets, News Media, and the Wider Internet***

Hans Hanley, Deepak Kumar, Zakir Durumeric

To Appear: 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW 2023), October 2023.

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, Garrett 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) Declarative 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.

- Led and helped design the default final project for course.
- Supervised the final project implementation for 21 student teams (1-3 students per team).

### **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 8<sup>th</sup> of engineering class*

**Hertz Foundation Graduate Fellowship Finalist 2018**

*One of only 40 candidates from a pool of 700 applicants selected as finalists after 1<sup>st</sup> 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**

*Last Updated: March 17, 2023*