

Alicia L. Nobles

Education

- PhD, Systems & Information Engineering, Raven Society** Dec 2018
University of Virginia
- MS, Civil Engineering** Aug 2014
University of Virginia
- BS, Civil Engineering, Summa Cum Laude** Dec 2007
Georgia Tech

Research Experience with Select Projects

Fellow 2018 - Current

Research Group: Steffanie Strathdee, John Ayers, Mark Dredze
Division of Infectious Diseases & Global Public Health, Dept of Medicine
University of California San Diego

- Highlighted missed opportunities to leverage intelligent virtual assistants (e.g., Siri) to link those seeking help for addiction to existing, free, evidence-based services.
- Identified “crowd-diagnosis” on Reddit using mixed methods (data science and qualitative coding).
- Identified disparities in news reporting of celebrity drug overdoses. Partnered with CNN and Reuters to include helplines in reporting of drug-related news.

Visiting Scholar Summer 2018

Research Group: Mark Dredze
Center for Language & Speech Processing, Dept of Computer Science
Johns Hopkins University

- Identified themes in HIV-related Instagram images using computer vision software and unsupervised learning.
- Identified unprecedented Google searches (86% higher; 40-54 million more) for sexual violence in response to #MeToo using time series modeling.

Graduate Research Fellow 2014 - 2018

Research Group: Laura Barnes
Dept of Systems & Information Engineering
University of Virginia

- Track record of communicating ideas resulting in \$330k of funding for my PhD research from 6 fellowships and grants and 22 collaborators across fields.
- Developed an online survey to evaluate health insurance literacy of young adults. 88% of participants couldn't determine their cost-sharing. Partnered with student health to supply additional training.
- First to identify imminent suicide risk by applying a n-gram model to over 1+ million text messages of suicide attempters.
- Identified unprecedented Google searches (15% higher; 10-21 million more) for intrauterine devices correlated with uncertainty of US health reform using time series modeling.

Graduate Research Fellow 2012 - 2014

Research Group: Jon Goodall
Dept of Civil Engineering
University of Virginia

- Linked siloed Access & GIS databases for first ever cost-benefit analysis of stormwater nutrient credit banking in the US. Provided evidence for VDOT to purchase \$2 million of nutrient credits jump-starting the market in the US.

Teaching Experience

Instructor

Linear Statistical Models (co-listed undergraduate/graduate) Fall 2017

- Received nomination for All University Teaching Award for exceptional teaching for co-listed class of 118 students. Nominees are top 5% of teachers across the entire university.

Teaching Assistant

Systems Integration (graduate) Spring 2018

Calculus II (undergraduate) Fall 2014, Spring 2015, Spring 2018

Guest Lecturer

Healthcare for the consumer (undergraduate) Spring 2016

Training in Pedagogy

Tomorrow's Professor Today 2017-2019

- Competitive two-year program that focuses on pedagogy.

Professional Experience

Civil Engineer

2008 - 2012

Environmental Services

CH2M (now Jacobs)

- Managed large scale (\$8 million) groundwater remediation projects including design, permitting, staffing, report preparation, and public relations.
- Managed budget, staffing, and schedule for 44 environmental investigation sites in US and Caribbean. Authored 44 reports in less than 3 weeks saving \$20,000 of a \$60,000 budget coordinating with personnel in 10+ offices. Authored proposal that was awarded \$1.2 million for follow-up investigation.
- Created standardized data collection plan template and trained a small business to use the template for 21 sites on a \$40 million small business joint venture.

Publications

* Conference proceedings are the primary peer-reviewed publication venue in computer science and similar in rigor to journals.

1. **Nobles**, Leas, Caputi, Zhu, Strathdee, Ayers. (forthcoming). "Did I Say Something Wrong?" Responses to Addiction Help-Seeking from Intelligent Virtual Assistants on Alexa, Siri, Google Assistant, Bixby, and Cortana. *Nature Digital Medicine*.
2. **Nobles**, Leas, Althouse, Dredze, Longhurst, Smith, Ayers. (forthcoming). Requests for Diagnoses of Sexually Transmitted Diseases on a Social Media Platform. *JAMA*.
3. Glenn, **Nobles**, Barnes, Teachman. (forthcoming). Can Text Messages Identify Suicide Risk in Real Time? A Within-Subjects Pilot Examination of Temporally-Sensitive Markers of Suicide Risk. *Clin Psychol Sci*.
4. Leas, **Nobles**, Caputi, Ayers. 2019. Trends in Internet Searches for Cannabidiol (CBD) in the United States. *JAMA Open*.
5. Strathdee, **Nobles**, Ayers. 2019. Harnessing Digital Data and Data Science to Achieve 90-90-90 Goals to End the HIV Epidemic. *Current Opinion in HIV and AIDS*.
6. Leas, Prochaska, Ayers, **Nobles**, Henrikson. 2019. What to do when tobacco advertisers co-opt anti-tobacco social media campaigns to sell tobacco. *Tobacco Control*.
7. **Nobles**, Dredze, Ayers. 2019. "Repeal and Replace": Increased Demand for Intrauterine Devices Following the 2016 Presidential Election. *Contraception*.
8. Ayers, **Nobles**, Dredze. 2019. Media Trends for SAMHSA's 800-662-HELP Addiction Treatment Referral Services Following a Celebrity Overdose. *JAMA Intern Med*.

9. Caputi, **Nobles**, Ayers. 2018. Internet Searches for Sexual Harassment and Assault, Reporting, and Training Following #MeToo. JAMA Intern Med.
10. **Nobles**, Dreisbach, Keim-Malpass, Barnes. 2018. "Is this a STD? Please help!": Online Information Seeking for STDs on Reddit. Proc of AAAI Conference on Web and Social Media (ICWSM).
11. **Nobles**, Glenn, Kowsari, Teachman, Barnes. 2018. Identification of Imminent Suicide Risk Among Young Adults using Text Messages. Proc of ACM Conference on Human Factors in Computing Systems (CHI).
12. **Nobles**, Curtis, Ngo, Vardell, Holstege. 2018. Health Insurance Literacy of College Students: A Mixed Methods Analysis. J Am Coll Health.
13. Boukhechba, Bae, **Nobles**, Gong, Wells, Barnes. 2018. A social cognitive theory-based framework for monitoring medication adherence applied to endocrine therapy in breast cancer survivors. Proc of IEEE EMBS International Conference on Biomedical & Health Informatics (BHI).
14. **Nobles**, Goodall, Fitch. 2017. Comparing the Cost of Onsite Best Management Practices to Nutrient Credit Offsets for Stormwater Management: Case Study for VDOT. JAWRA.
15. **Nobles**, Vilankar, Wu, Barnes. 2015. Evaluation of Data Quality of Multisite Electronic Health Record Data for Secondary Analysis. Proc of IEEE Conference on Big Data.

Work Under Review

1. **Nobles**, Leas, Dredze, Ayers. (under review). Using Online Communities to Reduce Disparities in Traditional Brick and Mortar Health Care.
2. Ayers, **Nobles**, Leas, Dredze. (under review). Data Science and Surveillance: Another Promising Legacy and Future in Digital Behavioral Medicine.
3. Mueller, Wood-Doughty, Amir, **Nobles**, Dredze. (under review). Understanding the Me in MeToo: Characterizing Demographics and Discussions in a Twitter-Based Social Movement.
4. **Nobles**, Leas, Latkin, Dredze, Strathdee, Ayers. (under review). #HIV: HIV Control and Prevention Advocacy on Instagram.
5. **Nobles**, Leas, Noar, Dredze, Strathdee, Ayers. (under review). "Am I At Risk of HIV?" Demographic Profiles of Faces in HIV Awareness Posts on Instagram.

Theses

1. **Nobles**. 2018. PhD Dissertation. Mining User-Generated Data to Examine Online Information Seeking for Reproductive and Sexual Health.
2. **Nobles**. 2014. MS Thesis. Investigating the Cost-Effectiveness of Nutrient Credit Use as an Option for VDOT Stormwater Permitting Requirements.

Technical Reports

1. **Nobles**, Goldstein, Goodall, Fitch. 2014. Investigating the Cost Effectiveness of Nutrient Credit Use as an Option for VDOT Stormwater Permitting Requirements. FHWA/VCTIR 15-R9 Report 15-R9.

Presentations

1. **Nobles**. 2018. "Is this a STD? Please help!": Online Information Seeking for Sexually Transmitted Diseases. Dept of Engineering Management & Systems Engineering, George Washington University. (invited seminar talk)
2. **Nobles**. 2018. "Is this a STD? Please help!": Online Information Seeking for Sexually Transmitted Diseases. Division of Infectious Disease and Global Public Health, University of California San Diego. (invited seminar talk)

3. **Nobles**, Dreisbach, Keim-Malpass, Barnes. 2018. "Is this a STD? Please help!": Online Information Seeking for STDs on Reddit. Proc of AAAI Conference on Web and Social Media (ICWSM) Stanford, CA. (conference poster)
4. **Nobles**, Glenn, Kowsari, Teachman, Barnes. 2018. Identification of Imminent Suicide Risk Among Young Adults using Text Messages. Proc of ACM Conference on Human Factors in Computing Systems (CHI). Montreal, Québec. (conference presentation)
5. **Nobles**. 2017. Health Insurance Literacy of College Students: Implications for the Student Health Insurance Plan. Institutions in Context: Healthcare Institutions and Policy. Tampere, Finland. (workshop presentation)
6. **Nobles**, Curtis, Ngo, Holstege. 2017. Health Insurance Literacy of College Students. 2017 ACHA Annual Meeting. Austin, TX. (conference poster)
7. **Nobles**, Glenn, Teachman, Barnes. 2017. Novel Methods to Predict Suicide Attempts by Young Adults using Personal Communication and Social Media Data. 2nd Symposia on Computing and Mental Health, SIGCHI Conf Hum Factor Comput Syst (CHI-17). Denver, CO. (workshop poster)
8. **Nobles**, Curtis, Ngo, Holstege. 2017. Health Insurance Literacy of College Students. 2017 Curry Research Conference. Charlottesville, VA. (conference presentation)
9. Glenn, **Nobles**, Barnes, Teachman. 2016. Utilizing Machine Learning Techniques to Improve Prediction and Prevention of Suicide and Self-Injury. 2016 ABCT. New York City, NY. (conference presentation)
10. **Nobles**, Vilankar, Wu, Barnes. 2015. Evaluation of Data Quality of Multisite Electronic Health Record Data for Secondary Analysis. Proc of IEEE Conference on Big Data. San Jose, CA. (conference presentation)
11. **Nobles**, Goldstein, Goodall, Fitch. 2015. Investigating the Cost-Effectiveness of Nutrient Credit Use as an Option for VDOT Stormwater Permitting Requirements. 2015 TRB Annual Meeting. Washington, D.C. (conference presentation)
12. Convers, Newman, **Nobles**. 2007. An Improved Global Energy to Moment Ratio Catalog: More Events, Stations, and Rupture Durations. Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract S52B-02. (conference poster)

Funding Support

PI: "Quantifying Treatment Help-Seeking Among Self-Identified Opioid Users on Social Media" (under review)

NIH National Institute on Drug Abuse (NIDA) K25

Amount: \$946,580

PI: "Quantifying and Contextualizing Personally Identifiable Information on Social Media" (received but declined)

Fordham University HIV and Drug Abuse Prevention Research Ethics Training Institute (RETI)

Amount: \$20,000

Trainee: Substance Use, HIV, and Related Infections Training Grant (NIH T32)

2018 - Current

Div of Infectious Diseases & Global Public Health, Dept of Medicine, UC San Diego

Fellow: StatLab Fellowship

2017 - 2018

Library Research Data Services & Sciences, University of Virginia

Amount: \$6,400

Fellow: Teaching Fellowship

2017

School of Engineering and Applied Science, University of Virginia

Amount: \$9,000

PI: "Health Insurance Literacy of College Students"

2017 - 2018

Double Hoo Grant, Center for Undergraduate Excellence, University of Virginia

Amount: \$4,809

Trainee: Transdisciplinary Big Data Science Training Grant (NIH T32)

2016 - 2017

Dept of Biomedical Engineering, University of Virginia

PI/Fellow: "Predicting Imminent Suicide Risk using Text Messages in Real-Time"

2015 - 2016

Presidential Fellowship in Data Science, Data Science Institute, University of Virginia

Amount: \$25,000

Co-Author & Sole Supporting Grad Student: "Evaluating the Cost-Effectiveness of Water Quality Trading for Stormwater Management" 2014 - 2015

Virginia Transportation Research Council Grant, Virginia Transportation Research Council

Amount: \$102,901

Fellow: Olive B. and Franklin C. Mac Krell Jefferson Fellowship 2012 - 2017

Jefferson Scholars Foundation

Amount: \$120,000

Fellow: Commonwealth Fellowship in Engineering 2012 - 2013

School of Engineering and Applied Science, University of Virginia

Amount: \$32,500

Mentoring

- Dylan Hazlett, BS (Engineering): *Online Information Seeking*
- Brett Curtis, BS (Education): *Health Insurance Literacy*
- Hillary Goldstein, BA (Economics): *Nutrient Credit Trading*
- Mentored multiple junior engineers in industry

Honors & Awards

Research

- Altmetric Top 5% of All Research Outputs
- NSF Graduate Research Fellowship (honorable mention)

Professional

- New Faces of Engineering (nomination)
- Beyond Performance (4 times)

Teaching

- All University Teaching Award (nomination)

Relevant Training

Courses

- agent based models
- big data in health
- computational research
- data mining
- epidemiology
- environmental epidemiology
- GIS
- US health policy
- linear statistical models
- machine learning
- optimization
- research ethics
- stochastic systems
- text mining

Workshops

- Big Data Coursework for Computational Medicine (Weill Cornell Medicine)
- Healthcare Data Analytics (Oregon Health & Science University)
- Institutions in Context: Healthcare (University of Tampere)
- Catalyzing Advocacy in Science and Engineering (AAAS)

Training Grants

- Transdisciplinary Big Data Science (NIH T32)
- Substance Use, HIV, and Related Infections (NIH T32)

Service

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| Graduate Student Representative: Student Health Insurance Committee | 2012 - 2018 |
| Student Volunteer: AMIA Symposium | 2016 - 2017 |
| Mentor: Computers 4 Kids | 2014 - 2016 |
| Pharmacy Tech/Exit Interview Volunteer: Charlottesville Free Clinic | 2013 - 2014 |