Emily Tseng

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RESEARCH INTERESTS

I am interested in **human-computer interaction (HCI), information and communication technologies for development (ICTD)** and **ubiquitous computing** in the context of **health technology.** In particular, I aim to investigate how novel **applications of sensing and natural language processing (NLP)** in physical, behavioral and mental health might improve wellbeing for underserved people.

EDUCATION

2019 - present *Ph.D. student, Information Science,* **Cornell University**
Advised by Nicola Dell and Deborah Estrin.

2017 - 2019 *M.S. Information Systems, Health Tech specialization,* **Cornell Tech** GPA: 3.9/4.0
Relevant coursework: Applied Machine Learning, Deep Learning, Natural Language Processing, Human-Computer Interaction, Interactive Device Design.
Advised by Deborah Estrin and Nicola Dell.

2010 - 2014 *B.A. Ecology & Evolutionary Biology,* **Princeton University** GPA: 3.5/4.0
Concentration in Global Health and Health Policy. Studied epidemiology, journalism and social policy with a focus on predictive modeling of infectious disease epidemics.
Advised by Bryan Grenfell and Tiffany Bogich.

PUBLICATIONS

1. **Tseng, E.,** Okeke, F., Sterling, M., and Dell, N. *"We can learn. Why not?" Challenges and Opportunities in Designing for Equity for Home Health Aides.* ACM Conference on Human Factors in Computing Systems (CHI '20). To appear, April 2020.

2. Freed, D.*, Havron, S.*, **Tseng, E.,** Gallardo, A., Chatterjee, R., Ristenpart, T., and Dell, N. *"Is my phone hacked?" Analyzing Clinical Computer Security Interventions with Survivors of Intimate Partner Violence.* Proceedings of the ACM on Human-Computer Interaction: Vol. 1 Issue CSCW. 2019. pdf. ***Best Paper Honorable Mention.***

3. Okeke, F., **Tseng, E.,** Piantella, B., Brown, M., Kaur, H., Sterling, M., and Dell, N. *Technology, Home Health Care, and Heart Failure: A Qualitative Analysis with Multiple Stakeholders.* ACM SIGCAS Conference on Computing & Sustainable Societies (COMPASS '19). pdf.

ACADEMIC AWARDS

2019 *Cornell University Information Science Department Fellowship*
One-year doctoral fellowship awarded in recognition of exceptional preparation and promise (top 1.5% of applicants).

2017 *Cornell Tech Merit Scholarship* - Two-year merit award for Master's-level study.

2014 *Princeton University Department of Ecology & Evolutionary Biology Senior Thesis Award -- Mathematical Modeling*

CURRENT RESEARCH

Understanding online abuser communities in intimate partner violence (IPV) 7/2019 - present

PIs: Nicola Dell, Ph.D. and Thomas Ristenpart, Ph.D. (Cornell Tech)

- Building a longitudinal web scraping pipeline for collecting "in-the-wild" data from online forums, bulletin boards, and other social technologies where abusers share tips on how to enact technology-mediated IPV.

Clinical computer security for victims and survivors of IPV 8/2018 - present

PIs: Nicola Dell, Ph.D. and Thomas Ristenpart, Ph.D. (Cornell Tech)

- Conducting a field study of a "tech clinic" intervention for victims of IPV in New York City, in partnership with the Mayor's Office to End Domestic and Gender-Based Violence.
- Co-authored paper contextualizing resultant learnings in the broader literature on technology for social justice and computer-supported consultative work [1].

Community-engaged technology design to support home health aides (HHAs) caring for adults with heart failure 8/2018 - present

PI: Nicola Dell, Ph.D. (Cornell Tech)

- Performed qualitative analysis of interviews with 50+ HHAs, nurses, physicians and social workers to understand the technology ecosystem around the home care of patients recovering from heart failure.
- Co-authored paper contextualizing resultant themes in the broader literature on technology in coordinated care environments [2].
- Designed and executed a participatory design study with HHAs, nurses, and other stakeholders.
- Built a functional prototype, from wireframes to application, for a tablet-based tool facilitating communication, data collection and decision support for HCWs in the field.

Designing online psychotherapy platforms 7/2018 - present

PI: George Nitzburg, Ph.D. (Teachers' College, Columbia University)

- Conducted a mixed-methods analysis of 19,000 messages sent between patients and providers on a widely used and commercially available platform for online psychotherapy.
- Co-authored paper contextualizing resultant themes in the broader literature on computer-mediated communication and synthesizing design recommendations for mental health technologies **[*in submission for an ACM conference*]**

PAST RESEARCH

Extracting family history from unstructured clinical notes 8/2018

- Developed a combined rule-based and statistical model (LSTM-CRF) extracting family history information from unstructured text in patient information questionnaires.
- Awarded student travel grant to present at the OHNLP/BioCreativ workshop at ACM-BCB 2018.

Evaluating the usability of a personal data filtering interface 3/2018 - 6/2018

PI: Deborah Estrin, Ph.D. (Cornell Tech)

- Conducted a controlled experiment via Amazon Mechanical Turk HITs evaluating the usability of an interface for filtering sensitive data from a user's Google Takeout export, with the goal of providing sanitized personal data to researchers. **[*in submission*]**
- Performed semi-structured interviews to reveal usability and privacy issues around the tool.

Prototyping a tool for real-time smartphone-based mood tracking 1/2018 - 6/2018
PI: JP Pollak, Ph.D. (Cornell Tech)
- Performed a literature review assessing prior computational approaches to treating anxiety.
- Prototyped and tested an intentive computing tool building on the hardware interface of an iPhone for logging emotional states in real time.
- Performed observational studies and semi-structured interviews to investigate the usability and utility of the tool for managing subthreshold and generalized anxiety.

Modeling the dynamics of enterovirus-71 in Taiwan: An application of the TSIR model 2014
PI: Bryan Grenfell, Ph.D. (Princeton University)
- Developed a time-series model predicting the impact of vaccination on enterovirus infection rates in Taiwan based on data from the Taiwanese CDC. [poster]
- Awarded departmental prize for excellence in mathematical modeling.

RELEVANT WORK EXPERIENCE

Freelance Software Designer & Developer, New York, NY 2017 - present
- Designed and developed a recipe management tool for the Thomas Keller Restaurant Group.
- Developed a Chrome extension providing online news readers with articles from contrasting political viewpoints for civic media startup Bridge the Media.

Pfizer, Inc., New York, NY
Summer Associate 6/2018 - 8/2018
- Led a team of UX researchers and technologists to synthesize user stories, product requirements and storyboards for a care navigation product addressing health disparities within the Welsh NHS.
- Interviewed domain experts on the feasibility of a consumer voice product for patient support.

Biomeme, Inc., Philadelphia, PA
Product & Business Development Associate 8/2014 - 6/2016
- Developed an at-home sexual health diagnostic for a national reproductive healthcare provider.
- Developed a point-of-care influenza diagnostic with a federal disease control agency, resulting in a pilot program in a clinic network in Nairobi, Kenya.
- Conducted UX studies to guide development of a consumer-facing tool for personal DNA analysis.

Oxford University Clinical Research Unit (OUCRU), Ho Chi Minh City, Vietnam
Research Intern 5/2013 - 8/2013
- Conducted literature reviews, performed data analyses (R) and mapped patient enrollment (GIS, Illustrator) for ongoing clinical studies at a tertiary tuberculosis hospital.
- Funded by the Health Grand Challenge at the Center for Health & Wellbeing at Princeton University.

Doctors Without Borders / Medecins Sans Frontieres (MSF), New York, NY
Editorial & Multimedia Intern 5/2011 - 8/2011, 5/2012 - 8/2012
- Produced audio, video and web features as part of the Editorial team at MSF-USA.
- Conducted interviews with MSF field staff, including doctors, nurses, logisticians and administrators.

The Daily Princetonian, Princeton, NJ
Managing Editor 01/2013 - 01/2014
- Led 100+ staff of a collegiate news organization publishing in print 5x/week and online 24/7.
- Built web and data journalism departments, and expanded the paper's multimedia capabilities.

TEACHING EXPERIENCE

Cornell Tech at Cornell University, New York, NY

Teaching Assistant, INFO 6410 / CS 5682: HCI & Design, Professor Nicola Dell Fall 2019
Grader, CS 5740: Natural Language Processing, Professor Yoav Artzi Spring 2019
Lead Teaching Assistant, Product Studio, Professor Deborah Estrin Fall 2018

Fullstack Academy, New York, NY

Software Engineering Teaching Fellow 5/2017 - 8/2017

- Taught and mentored 80+ students at a selective software engineering bootcamp.
- Delivered a 10-minute talk introducing principles of inclusive design and web accessibility for front-end developers: https://youtu.be/NQP8yg81KZ8

ADDITIONAL LEADERSHIP EXPERIENCE

HealthTech.NYC, *2018-19 Co-Organizer*

- Curated a speaker series for engineers, designers, clinicians and academics in the New York City health tech ecosystem.

Venture for America, *2014 Fellow*

- Elected to the 2016-17 Alumni Board to support programs providing an onramp to entrepreneurship for historically disadvantaged communities.

SKILLS

- *Human-Centered Design* | Interviewing, contextual enquiry, survey design, thematic analysis, prototyping (Sketch, Photoshop, Illustrator, InDesign, InVision)
- *Software Development* | Full-stack software engineering (JavaScript, Node.JS, React, HTML, CSS/Sass), Agile development
- *Statistical Analysis* | General quantitative analysis and modeling (Python, R, MATLAB), machine learning (scikit-learn, Dynet, Tensorflow)
- *Communication* | Writing, editing, public speaking, multimedia production (audio and video)
- *Research* | Literature review, study protocol design, IRB submission, paper-writing