LAUREN OEY

loey812@gmail.com
(862) 223-9228
Github
LinkedIn

SUMMARY

Computational research scientist with 9+ years of experience developing generative statistical models, testing models with self-programmed human behavioral experiments, and building analysis pipelines to interpret and query rich, structured datasets. I am always eager to strategically select from or add new tools to my machine learning and text analysis toolkit, spanning language models, mixed-effects regression, clustering, word embeddings, network analysis, information measures, etc. My overarching goal is to improve how AI caters to human beliefs and values.

EXPERIENCE

Postdoctoral Research Associate, **Princeton University**   *2023-Present*
- Integrated Phaser physics engine & canvas drawing to innovate a unique, engaging behavioral experiment (JavaScript, CSS, HTML, PHP)
- Evaluate data to identify improvement in data collection and executed improvements (SQL, R)
- Comparing image variability using mutual information measures (python, pandas, PIL, seaborn)
- Applying LLMs to strings of stroke coordinates to develop artificial generative agents that "draw" alongside people

Computational Researcher, **Computational Cognition Lab + Cognitive Tools Lab**   *2018-2023*
- Developed statistical and economic generative models of human communication and pragmatics (lying & lie detection) in R
- Created web app (rshiny) to interpret & visualize model behavior across parameter changes
- Applied machine learning techniques (e.g. LDA topic models with stm, word embeddings for semantic analysis, k-means clustering) to webscraped 34,000+ text documents w/ network structure (python, beautifulsoup4, pdfminer)
- Trained & fine-tuned LSTM & n-gram LMs on the Reddit corpus to measure word entropy (PyTorch)
- Published 3 journal articles, 5 conference papers, awarded ∼$200,000 in grants, managed 8 undergrad researchers

Research Intern, Center for the Study of Language & Information, **Stanford University**   *Summer 2017*
- Programmed multi-agent web experiments in interdisciplinary team (computer science & psychology researchers)
- Analyzed text free response data using CoreNLP tools to evaluate semantic and pragmatic content

Research Assistant, **Human Language Processing Lab + Computation & Language Lab**   *2015-2018*
- Led honors thesis (programmed multiple experiments, applied predictive models & mixed-effects regression models), resulting in conference talks & best talk award
- Collaborated with 3-person team of students to replicate & expand on accented speech processing study
- Assisted in teaching 6 data science, statistics, computer science, & linguistics courses

SKILLS

Programming Languages: Python (pandas, seaborn), R (tidyverse, rshiny), SQL, JavaScript, Java
Other: PyTorch, HTML, CSS, LaTeX, Markdown, Git, Unix Shell, Mechanical Turk, CloudResearch, MariaDB

EDUCATION

University of California, San Diego   *2023*
   Ph.D. in **Experimental Psychology** (GPA: 4.0)
University of Rochester   *2018*
   B.S. in **Brain and Cognitive Sciences**, Honors in Research, *Magna cum laude* (GPA: 3.85)
   B.A. in **Statistics** & **Linguistics** (triple major); Minor in **Computer Science**

SELECTED PUBLICATIONS

Oey, L. A. & Vul, E. (2023). Accurate approximations about the truth from literally false messages. *Computational Brain & Behavior.* https://doi.org/10.1007/s42113-023-00187-0

Oey, L. A., Schachner, A., & Vul, E. (2023). Designing and detecting lies by reasoning about other agents. *Journal of Experimental Psychology: General*, *152*(2), 346-362. `https://doi.org/10.1037/xge0001277`

Huey, H.*, **Oey, L. A.***, Lloyd, H. S. & Fan, J. E. (2023). How do communicative goals guide which data visualizations people think are effective? In M. Goldwater, F. K. Anggoro, B. K. Hayes, & D. C. Ong (Eds.), *Proceedings of the 45th Annual Meeting of the Cognitive Science Society* (pp. 2229-2236).

Oey, L. A. & Vul, E. (2022). Inferring truth from lies. In J. Culbertson, A. Perfors, H. Rabagliati, & V. Ramenzoni (Eds.), *Proceedings of the 44th Annual Meeting of the Cognitive Science Society* (pp. 1469-1475).

DeStefano, I.*, **Oey, L. A.***, Brockbank, E., & Vul, E. (2021). Integration by parts: Collaboration and topic structure in the CogSci community. *Topics in Cognitive Science*, *13*(2), 399-413. `https://doi.org/10.1111/tops.12526`

Oey, L. A. & Vul, E. (2021). Lies are crafted to the audience. In T. Fitch, C. Lamm, H. Leder, & K. Teßmar-Raible (Eds.), *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society* (pp. 791-797).

Oey, L.*, DeStefano, I.*, Brockbank, E., & Vul, E. (2020). Formalizing interdisciplinary collaboration in the CogSci community. In S. Denison, M. L. Mack, Y. Xu, & B. C. Armstrong (Eds.), *Proceedings of the 42nd Annual Meeting of the Cognitive Science Society* (pp. 474-480).

Oey, L. A., Schachner, A., & Vul, E. (2019). Designing good deception: Recursive theory of mind in lying and lie detection. In A. K. Goel, C. M. Seifert, & C. Freksa (Eds.), *Proceedings of the 41st Annual Meeting of the Cognitive Science Society* (pp. 897-903). Montreal, QB: Cognitive Science Society.

Oey, L. A., Mollica, F., & Piantadosi, S. T. (2018). Adults use gradient similarity information in compositional rules. In T. T. Rogers, M. Rau, X. Zhu, & C. W. Kalish (Eds.), *Proceedings of the 40th Annual Meeting of the Cognitive Science Society* (pp. 842-847). Austin, TX: Cognitive Science Society.

FELLOWSHIPS & AWARDS

ACM SIGHPC Computational & Data Science Fellowship ($45,000)	*2021-2023*
Diverse Intelligences Summer Institute Fellowship, Templeton World Charity Fund	*2021*
Computational Modeling Prize in Applied Cognition, Cognitive Science Society ($1,000)	*2020*
William James Prize Honorable Mention (2nd best paper), Society for Philosophy and Psychology	*2019*
NSF Graduate Research Fellowship ($138,000)	*2018-2023*
Norman Henry Anderson Graduate Fellowship, UCSD ($5,000)	*2018-2019*
Competitive EDGE Fellowship, UCSD ($4,000)	*2018*
Real World Communication Student Travel Award	*2018*
President's Award (best talk), University of Rochester, Undergrad Research Exposition (Social Sciences)	*2018*