

THEODORE R. SUMERS

[tedsumers.info](mailto:tedsumers@gmail.com)
tedsumers@gmail.com
551 427 5793

EDUCATION

Princeton University Fall 2019 - Spring 2024
PhD in Computer Science
Dissertation: *Grounding communication in real-world action*
Advisor: Dr. Thomas L. Griffiths

Dartmouth College Fall 2008 - Spring 2013
AB and BE in Electrical Engineering, Cum Laude

PROFESSIONAL EXPERIENCE

Anthropic 2023 - present
Staff Research Engineer
Inference-time safety measures for LLMs.

Google DeepMind 2022
Research Scientist Intern
Research on large-scale vision-language models and embodied agents (paper accepted at *ICML*).

Uber Technologies 2014 - 2019
Data Scientist → Engineering Manager II
Founded an applied research team (grew to 6 researchers) focusing on machine learning and signal processing ([tech talk](#)). My work resulted in patents (below), a critical regulatory certification ([press release](#)), and major product launches (including [driving safety analysis](#), [crash detection](#), and [network efficiency](#)).

Automatic Labs 2013 - 2014
Data Scientist
10th employee at early-stage Y Combinator startup. Sirius XM acquired Automatic for >\$100M in 2017.

Bridgewater Associates, LP 2012
Technology Associate Intern
Backtesting framework for experimental trading algorithms.

JOURNAL ARTICLES (* denotes equal contribution)

Sumers, T.*, Kumar, S.*, Yamakoshi, T., Goldstein, A., Hasson, U., Norman, K., ... & Nastase, S. (2024). Shared functional specialization in transformer-based language models and the human brain. *Nature Communications* (in press).

Sumers, T.*, Yao, S.*, Narasimhan, K., & Griffiths, T. L. (2023). Cognitive Architectures for Language Agents. *Transactions in Machine Learning Research*.

Sumers, T., Ho, M., Griffiths, T., & Hawkins, R. (2023). Reconciling truthfulness and relevance as epistemic and decision-theoretic utility. *Psychological Review* (in press).

Sumers, T., Ho, M., Hawkins, R., & Griffiths, T. (2023). Show or Tell? Exploring when (and why) teaching with language outperforms demonstration. *Cognition*, 232, 105326.

Thompson, B., Van Opheusden, B., **Sumers, T.**, & Griffiths, T. (2022). Complex cognitive algorithms preserved by selective social learning in experimental populations. *Science*, 376(6588), 95-98.

CONFERENCE PAPERS

Peng, A., Sucholutsky, I., Li, B. Z., **Sumers, T.**, Griffiths, T. L., Andreas, J., & Shah, J. (2024). Learning with Language-Guided State Abstractions. *International Conference on Learning Representations (ICLR)*, 12.

Sumers, T., Marino, K., Ahuja, A., Fergus, R., & Dasgupta, I. (2023). Distilling internet-scale vision-language models into embodied agents. *International Conference on Machine Learning (ICML)*, 202:32797-32818.

Marjeh, R., van Rijn, P., Sucholutsky, I., **Sumers, T.**, ... & Jacoby, N. (2023). Words are all you need? Language as an approximation for human similarity judgments. *International Conference on Learning Representations (ICLR)*, 11.

Sumers, T., Hawkins, R., Ho, M., Griffiths, T., & Hadfield-Menell, D. (2022). How to talk so AI will learn: Instructions, descriptions, and autonomy. *Neural Information Processing Systems (NeurIPS)*, 35, 34762-34775.
- *Best Paper Award* at Language and Reinforcement Learning Workshop (NeurIPS '22)
- *Spotlight Oral* at Human and Machine Collaboration and Teaming Workshop (ICML '22)

Sumers, T., Ho, M., Hawkins, R., Narasimhan, K., & Griffiths, T. (2021). Learning rewards from linguistic feedback. *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*, Vol. 35, No. 7, pp. 6002-6010.

Sumers, T., Hawkins, R., Ho, M., & Griffiths, T. (2021). Extending rational models of communication from beliefs to actions. *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society*.

Sumers, T., Ho, M., & Griffiths, T. (2020). Show or Tell? Demonstration is More Robust to Changes in Shared Perception than Explanation. *Proceedings of the 42nd Annual Meeting of the Cognitive Science Society*.

PATENTS

Irish, A., Ramasamy, D., Beinstein, A.J., **Sumers, T.**, Shekar, H. and Sankaravadivel, V., Uber Technologies Inc, 2023. *Inferring vehicle location and movement using sensor data fusion*. U.S. Patent 11,686,862.

Purdy, D., Chen, L. and **Sumers, T.**, Uber Technologies Inc, 2021. *Cascaded boosted predictive models*. U.S. Patent 11,138,524.

Brinig, K., Ioffe, M., Layton, B., **Sumers, T.** and Kadous, M.W., Uber Technologies Inc, 2020. *Trip termination determination for on-demand transport*. U.S. Patent 10,672,198.

Badalamenti, J., Inch, J., Sanchez, C.M. and **Sumers, T.**, Uber Technologies Inc, 2019. *Pickup location selection and augmented reality navigation*. U.S. Patent 10,508,925.

De, N., Tyagi, D., Sullivan, J., Wahba, K., **Sumers, T.**, Beinstein, A. and Su, G., Uber Technologies Inc, 2019. *Vehicle monitoring system*. U.S. Patent 10,445,950.

Badalamenti, J., Inch, J., Sanchez, C.M. and **Sumers, T.**, Uber Technologies Inc, 2019. *Augmented reality assisted pickup*. U.S. Patent 10,423,834.

Sumers, T., Uber Technologies Inc, 2019. *Network computer system for analyzing driving actions of drivers on road segments of a geographic region*. U.S. Patent 10,297,148.

Cui, S., Nguyen, T.D., **Sumers, T.**, Yu, M. and Zhang, X., Uber Technologies Inc, 2018. *Simplifying GPS data for map building and distance calculation*. U.S. Patent 9,939,276.

FELLOWSHIPS AND AWARDS

NDSEG Fellowship	2021-2024
Best Paper Award , Language and Reinforcement Learning Workshop (NeurIPS)	2022
Semifinalist , Global Social Entrepreneurship Competition	2012
Semifinalist , Dell Social Innovation Challenge	2012
Winner , EPA People, Prosperity, Planet Grant (\$15k)	2011
Winner , IEEE Outstanding Humanitarian Prize	2011

INVITED TALKS

Stanford , Causality in Cognition Lab (PI: Tobias Gerstenberg)	2024
SAP , Inspiration Information Series	2023
Princeton , Princeton AI Alignment Seminar	2023
AAAI , Symposium on Cognitive Architectures and Generative Models	2023
LangChain Webinar	2023
NYU , Social Identity And Morality Lab (PI: Jay Van Bavel)	2023
DeepMind , Economics Group	2023
Air Force Research Lab , Human Learning & Cognition Forum	2023
DeepMind , Reward Design Group	2022
Stanford , Computational Cognitive Science Lab (PI: Noah Goodman)	2022
MIT , Complang Talk Series	2022
Talking Robotics Podcast	2022
Air Force Office of Scientific Research , Trust & Influence Program Review	2022
Princeton , Parallel and Distributed Processing Talk Series	2022
Princeton , Cognitive Lunch Talk Series	2021

TEACHING EXPERIENCE

Graduate Teaching Assistant - Princeton University

- Computer Science: An Interdisciplinary Approach (Fall 2020, Spring 2021)

Undergraduate Teaching Assistant - Dartmouth College

- Digital Electronics (Spring 2012; named "Outstanding Teaching Assistant")

MENTORING EXPERIENCE

Princeton University

- Yosi Hatekar (Undergraduate at University of Toronto, now software engineer at AMD)
- Maya Malaviya (Lab manager at Princeton, now PhD candidate at Stevens Institute of Technology)
- Andi Peng (PhD candidate at MIT)

Uber Technologies

- Hired and led a team of 6 research engineers (all MS or PhD).
- Supported their career development, including successful promotion of 3 team members.
- Direct reports included:
 - Nikolaus Volk (now co-founder / CEO at Kyte)
 - Travis Addair (now co-founder / CTO at Predibase)
 - Olcay Cirit (now Senior Staff Research Scientist, Uber AI)
 - Pushkarini Agharkar (now Staff Software Engineer, Google)
 - Mohammad Shafkat Amin (now Staff Software Engineer, Facebook)
 - Lucinda Zhao (now Engineering Manager, Strava)

Dartmouth College

- As President of Tau Beta Pi (the Engineering Honors society), established a mentorship program connecting freshmen engineering majors with high-achieving juniors and seniors.

PROFESSIONAL SERVICE

Ad-hoc Reviewer for:

- Neural Information Processing Systems - 2023
- International Conference on Machine Learning, Theory of Mind workshop - 2023
- Proceedings of Cognitive Science Society - 2022, 2023
- Psychological Review - 2022
- Association for Computational Linguistics, Learning from Language Supervision workshop - 2022

Uber Technologies

Bar Raiser (2014-2019)

I was recognized as a top interviewer at the company and contributed to organizational hiring by (1) interviewing candidates for other teams and (2) moderating their debriefs to mitigate hiring biases.

Dartmouth Humanitarian Engineering

President (2011-2012), Project Lead (2010-2011), Tech Lead (2009-2010)

I led an undergraduate organization with 50+ members and 100k+ budget, partnering with local NGOs to develop sustainable engineering projects in East Africa. I won multiple competitions and grants to support our work (see Fellowships and Awards), served as *project lead* for a team of 10 students implementing small-scale hydropower in Rwanda, and *tech lead* for a team of 4 on clean cookstoves in Tanzania.

Tau Beta Pi Engineering Honors Society

President (2012), Member (2011)

Elected to the Engineering Honors Society based on GPA and personal character. As *President*, started a mentorship program to support prospective engineering majors (see Mentorship Experience).