

*E-mail:* [ericwallace@berkeley.edu](mailto:ericwallace@berkeley.edu)  
*Scholar:* [scholar.google.com/ericwallace](https://scholar.google.com/ericwallace)  
*Twitter:* [twitter.com/Eric\\_Wallace\\_](https://twitter.com/Eric_Wallace_)  
*Website:* [ericwallace.com](https://ericwallace.com)

## Eric Wallace

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EDUCATION	<b>UC Berkeley</b> 2019 - 2024 Ph.D. in Computer Science Research Advisors: Dan Klein, Dawn Song Thesis: <i>Measuring and Mitigating Vulnerabilities of Language Models</i>
	<b>University of Maryland</b> 2014 - 2018 B.S. in Computer Engineering GPA: 3.9, GRE: 170/170Q, 168/170V, 6/6W Research Advisor: Jordan Boyd-Graber
INDUSTRY EXPERIENCE	<b>Google Brain</b> Mountain View, California <i>Student Researcher</i> June 2023 - Sept 2023 Research Advisors: Dustin Tran, Denny Zhou, Xinyun Chen
	<b>Facebook AI Research (FAIR)</b> Menlo Park, California <i>Research Intern</i> June 2021 - Sept 2021 Research Advisors: Robin Jia, Douwe Kiela
	<b>Allen Institute for Artificial Intelligence (AI2)</b> Irvine, California <i>Research Intern</i> Jan 2019 - Aug 2019 Research Advisors: Matt Gardner, Sameer Singh
SELECTED AWARDS	Apple Fellowship in AI/ML, 2022-2024 Best Poster, NeurIPS 2021 ENLSP Workshop Best Paper, EMNLP 2019 Demo Track AI2 Intern of the Year, 2019 Eagle Scout, 2012
PUBLICATIONS	<ul style="list-style-type: none"><li>[1] Extracting Training Data from Diffusion Models Nicholas Carlini, Jamie Hayes, Milad Nasr, Matthew Jagielski, Vikash Sehwal, Florian Tramèr, Borja Balle, Daphne Ippolito, <b>Eric Wallace</b> <i>arXiv preprint</i>, 2023.</li><li>[2] Large Language Models Struggle to Learn Long-Tail Knowledge Nikhil Kandpal, Haikang Deng, Adam Roberts, <b>Eric Wallace</b>, Colin Raffel <i>arXiv preprint</i>, 2023.</li><li>[3] InCoder: A Generative Model for Code Infilling and Synthesis Daniel Fried, Armen Aghajanyan, Jessy Lin, Sida Wang, <b>Eric Wallace</b>, Freda Shi, Ruiqi Zhong, Wen-tau Yih, Luke Zettlemoyer, Mike Lewis <i>International Conference on Learning Representations (ICLR)</i>, 2023.</li><li>[4] Measuring Forgetting of Memorized Training Examples Matthew Jagielski, Om Thakkar, Florian Tramèr, Daphne Ippolito, Katherine Lee, Nicholas Carlini, <b>Eric Wallace</b>, Shuang Song, Abhradeep Thakurta, Nicolas Papernot, Chiyuan Zhang <i>International Conference on Learning Representations (ICLR)</i>, 2023.</li><li>[5] Deduplicating Training Data Mitigates Privacy Risks in Language Models Nikhil Kandpal, <b>Eric Wallace</b>, Collin Raffel <i>International Conference on Machine Learning (ICML)</i>, 2022.</li><li>[6] Automated Crossword Solving <b>Eric Wallace*</b>, Nicholas Tomlin*, Albert Xu*, Kevin Yang*, Eshaan Pathak*, Matt Ginsberg, Dan Klein <i>Association for Computational Linguistics (ACL)</i>, 2022.</li><li>[7] Analyzing Dynamic Adversarial Training Data in the Limit <b>Eric Wallace</b>, Adina Williams, Robin Jia, Douwe Kiela <i>Findings of the Association for Computational Linguistics (ACL Findings)</i>, 2022.</li></ul>

- [8] Cutting Down on Prompts and Parameters: Simple Few-Shot Learning with Language Models  
Robert L. Logan IV, Ivana Balažević, **Eric Wallace**, Fabio Petroni, Sameer Singh, Sebastian Riedel  
*ACL Findings 2022; NeurIPS Efficient NLP Workshop*.  
**Best Poster Award**
- [9] Calibrate Before Use: Improving Few-shot Performance of Language Models  
Tony Z. Zhao\*, **Eric Wallace\***, Shi Feng, Dan Klein, Sameer Singh  
*International Conference on Machine Learning (ICML)*, 2021.
- [10] Extracting Training Data from Large Language Models  
Nicholas Carlini, Florian Tramèr, **Eric Wallace**, Matthew Jagielski, Ariel Herbert-Voss, Katherine Lee, Adam Roberts, Tom Brown, Dawn Song, Úlfar Erlingsson, Alina Oprea, Colin Raffel  
*USENIX Security Symposium*, 2021.
- [11] Concealed Data Poisoning Attacks on NLP Models  
**Eric Wallace\***, Tony Z. Zhao\*, Shi Feng, Sameer Singh  
*North American Chapter of the Association for Computational Linguistics (NAACL)*, 2021.
- [12] Detoxifying Language Models Risks Marginalizing Minority Voices  
Albert Xu, Eshaan Pathak, **Eric Wallace**, Maarten Sap, Suchin Gururangan, Dan Klein  
*North American Chapter of the Association for Computational Linguistics (NAACL)*, 2021.
- [13] Imitation Attacks and Defenses for Black-box Machine Translation Systems  
**Eric Wallace**, Mitchell Stern, Dawn Song  
*Empirical Methods in Natural Language Processing (EMNLP)*, 2020.
- [14] Evaluating Models' Local Decision Boundaries via Contrast Sets  
Matt Gardner, Yoav Artzi, ... (other authors hidden) ... **Eric Wallace**, Ally Zhang, Ben Zhou  
*Findings of the Empirical Methods in Natural Language Processing (EMNLP Findings)*, 2020.
- [15] AutoPrompt: Eliciting Knowledge from Language Models with Automatically Generated Prompts  
Taylor Shin\*, Yasaman Razeghi\*, Robert L Logan IV\*, **Eric Wallace**, Sameer Singh  
*Empirical Methods in Natural Language Processing (EMNLP)*, 2020.
- [16] Gradient-based Analysis for NLP Models is Manipulable  
Junlin Wang\*, Jens Tuyls\*, **Eric Wallace**, Sameer Singh  
*Findings of the Empirical Methods in Natural Language Processing (EMNLP Findings)*, 2020.
- [17] Train Large, Then Compress: Rethinking Model Size for Efficient Training and Inference of Transformers  
Zhuohan Li\*, **Eric Wallace\***, Sheng Shen\*, Kevin Lin\*, Kurt Keutzer, Dan Klein, Joseph E. Gonzalez  
*International Conference on Machine Learning (ICML)*, 2020.
- [18] Pretrained Transformers Improve Out-of-Distribution Robustness  
Dan Hendrycks\*, Xiaoyuan Liu\*, **Eric Wallace**, Adam Dziedziec, Rishabh Krishnan, Dawn Song  
*Association for Computational Linguistics (ACL)*, 2020.
- [19] Universal Adversarial Triggers for Attacking and Analyzing NLP  
**Eric Wallace**, Shi Feng, Nikhil Kandpal, Matt Gardner, Sameer Singh  
*Empirical Methods in Natural Language Processing (EMNLP)*, 2019.
- [20] AllenNLP Interpret: A Framework for Explaining Predictions of NLP Models  
**Eric Wallace**, Jens Tuyls, Junlin Wang, Sanjay Subramanian, Matt Gardner, Sameer Singh  
*Demo at Empirical Methods in Natural Language Processing (EMNLP)*, 2019.  
**Best Demo Award**
- [21] Do NLP Models Know Numbers? Probing Numeracy in Embeddings  
**Eric Wallace\***, Yizhong Wang\*, Sujian Li, Sameer Singh, Matt Gardner  
*Empirical Methods in Natural Language Processing (EMNLP)*, 2019.
- [22] Misleading Failures of Partial-input Baselines  
Shi Feng, **Eric Wallace**, Jordan Boyd-Graber  
*Association for Computational Linguistics (ACL)*, 2019.
- [23] Compositional Questions Do Not Necessitate Multi-hop Reasoning  
Sewon Min\*, **Eric Wallace\***, Sameer Singh, Matt Gardner, Hannaneh Hajishirzi, Luke Zettlemoyer  
*Association for Computational Linguistics (ACL)*, 2019.
- [24] Understanding Impacts of High-Order Loss Approximations and Features in Deep Learning Interpretation  
Sahil Singla, **Eric Wallace**, Shi Feng, Soheil Feizi.  
*International Conference on Machine Learning (ICML)*, 2019.
- [25] Trick Me If You Can: Human-in-the-loop Generation of Adversarial Examples for Question Answering  
**Eric Wallace**, Pedro Rodriguez, Shi Feng, Ikuya Yamada, Jordan Boyd-Graber  
*Transactions of the Association for Computational Linguistics (TACL)*, 2019.
- [26] Pathologies of Neural Models Make Interpretations Difficult  
Shi Feng, **Eric Wallace**, Alvin Grissom II, Mohit Iyyer, Pedro Rodriguez, Jordan Boyd-Graber  
*Empirical Methods in Natural Language Processing (EMNLP)*, 2018.

TEACHING  
EXPERIENCE

**Courses:**

- Co-instructor of CS 288 (Berkeley's sole NLP course) alongside Dan Klein and Kevin Lin. I developed and taught 10+ new lectures on modern NLP (e.g., language models, scaling, risks). I also developed new homeworks, managed projects, and mentored students.

**Tutorials:**

- EMNLP, 2020. *Interpreting Predictions of NLP Models*.

**Guest Lectures:**

- Washington University in St. Louis CSE 527A, 2022. *Security & Privacy in NLP*
- University of Minnesota CSCI 8980-06, 2022. *Robustness in NLP*
- UC Berkeley CS 288, 2022. *Robustness in NLP*
- ML @ Berkeley, 2022. *Security & Privacy in NLP*
- University of Stuttgart, 2022. *Interpreting Predictions of NLP Models*

**Panels:**

- Women in Machine Learning. *PhD Fellowships Applications*
- ACL Mentoring. *How to Keep Up with Work in the Field*

MENTORING

**Student Research Mentoring**

- Carolyn Wang (2023-2024), UC Berkeley Undergrad.
- Arnav Gudibande (2022-2023), UC Berkeley Masters.
- Alex Wan (2022-2024), UC Berkeley Undergrad.
- Tony Zhao (2020-2021), UC Berkeley Undergrad. Published [9, 11]. Now PhD at Stanford.
- Albert Xu (2020-2021), UC Berkeley Undergrad. Published [6, 12]. Now PhD student at USC.
- Eshaan Pathak (2020-2021), UC Berkeley Undergrad. Published [6, 12]. Now at You.com
- Jens Tuyts (2019-2020), UC Irvine Undergrad. Published [16,20]. Now PhD student at Princeton.
- Junlin Wang (2019-2020), UC Irvine Undergrad. Published [16,20]. Now PhD student at Duke.
- Nikhil Kandpal (2019), UMD Undergrad. Published [19]. Now PhD student at UNC.

**External Mentoring**

- Women in Machine Learning. PhD Application Mentor
- Berkeley Equal Access Assistance Program. PhD Application Mentor
- Berkeley AI4All 2022. Instructor
- BAIR Underrepresented Undergraduate Mentoring

PRESENTATIONS

**Invited Talks & Presentations & External Visits**

- Oracle Labs, 2023. *Memorization in Large Language Models*
- Princeton, 2023. *Memorization in Large Language Models*
- UMD, 2023. *Memorization in Large Language Models*
- UNC, 2023. *Memorization in Large Language Models*
- USC ISI, 2022. *Emerging Vulnerabilities in Large-scale NLP Models*
- Malicious Life Podcast. *Hacking Language Models*
- Stanford, 2021. *What Can We Learn from Vulnerabilities of NLP Models?*
- Cornell, 2021. *What Can We Learn from Vulnerabilities of NLP Models?*
- DeepMind, 2021. *What Can We Learn from Vulnerabilities of NLP Models?*
- UT Austin, 2021. *What Can We Learn from Vulnerabilities of NLP Models?*
- CMU, 2021. *What Can We Learn from Vulnerabilities of NLP Models?*

**Conference Oral Presentations:** ACL 2022 Dublin [6], ICML 2021 Virtual [9], NAACL 2021 Virtual [11], EMNLP 2020 Virtual [13], ICML 2020 Virtual [17]; ACL 2020 Virtual [18], EMNLP 2019 Hong Kong, [19], EMNLP 2018 Brussels [26].

ACADEMIC  
SERVICE

**Program Committee Member**

- Conferences: ACL (2020, 2021, 2022), ICML (2021, 2023), NeurIPS (2020, 2021), EMNLP (2018, 2019, 2020, 2021, 2022), ACL Rolling Review (2021, 2022), ICLR (2023), NAACL (2021, 2022)
- Workshops: Distribution Shifts (NeurIPS 2022), Principles of Distribution Shifts (ICML 2022), BlackBox NLP (EMNLP 2022), RobustML Workshop (ICLR 2021), MRQA (EMNLP 2021), NLP for Positive Impact (ACL 2021), SRW (NAACL 2021), DistShift (NeurIPS 2021)

## Departmental Service

- Berkeley PhD Admissions. 2021, 2022, 2023
- Berkeley Student Committee for Faculty Hiring. 2023
- Berkeley PhD Visit Days Recruitment. 2021, 2022, 2023

## SELECTED MEDIA & PRESS

Extracting Training Data from Diffusion Models [1], [Twitter #1](#) (3 million views; 1000+ comments), [Twitter #2](#), [Twitter #3](#), [MIT Technology Review](#), [Gizmodo](#), [Ars Technica](#), [PetaPixel](#), [Vice](#), [MetaPhysic](#), [80LV](#), [Tech Circle \(India\)](#), [The Decoder](#), [TechSpot](#), [DIYPhotography](#), [CreativeBLOQ](#), [Walled Culture](#), [Local Today](#), [The Register](#), [New Scientist](#)

[Automated Crossword Solving \[6\]](#), [Discover](#), [New Scientist](#), [Wired](#), [Slate](#), [BBC](#), [Science Friday](#), [Top of Hacker News](#), [The Register](#), [Le Big Data \(French\)](#), [Berkeley Engineering Magazine](#), [WNPR](#), [Daily Californian](#), [Sydney Morning Herald](#), [Puzzle Nation](#), [I Programmer](#), [NVIDIA](#), [Neil deGrasse Tyson Podcast](#)

Extracting Training Data from Large Language Models [10], [Twitter #1](#), [Twitter #2](#), [Twitter #3](#), [Google Blog](#), [BAIR Blog](#), [Nature News](#), [Henry AI Labs](#), [MIT Technology Review](#), [Wired](#), [Yannic Kilcher Video](#), [Top of Hacker News](#), [Top of ML Reddit](#), [Sebastian Ruder Highlights](#), [Full Scan \(Spanish\)](#), [WebBigData \(Japanese\)](#), [AI Times \(Korean\)](#), [Analytics India Mag](#), [Venture Beat](#)

[Train Large, Then Compress: Rethinking Model Size for Efficient Training and Inference of Transformers \[17\]](#), [Twitter](#), [TWiML Talk Podcast](#), [Sebastian Ruder Highlights](#), [Towards Data Science](#), [Henry AI Labs Video](#), [BAIR Blog](#), [Sebastian Ruder Newsletter](#), [Synced](#)