Niloofar Mireshghallah

cs.washington.edu/~niloofar ☑ niloofar@cs.washington.edu **\(+1 (619) 888-9954 EDUCATION** Ph.D. in Computer Science University of California San Diego, USA Sep 2018-Apr 2023 CGPA 3.90/4.00M.S. in Computer Science University of California San Diego, USA Sep 2018-Jun 2020 CGPA 3.90/4.00 **B.Sc.** in Computer Engineering Sharif University of Technology, Iran Sep 2014-Jun 2018 CGPA 18.12/20.00 RESEARCH EXPERIENCE Postdoctoral Scholar University of Washington May 2023-Present Advisors: Yejin Choi, Yulia Tsvetkov Research Intern Microsoft Semantic Machines Jun 2022-Jul 2023 Mentors: Richard Shin, Yu Su, Tatsunori Hashimoto, Jason Eisner **Graduate Research Assistant** Berg Lab, CSE Department, UC San Diego Aug 2020-Apr 2023 Advisor: Taylor Berg-Kirkpatrick Research Intern Microsoft Research, Algorithms Jan 2022-Mar 2022 Mentors: Sergey Yekhanin, Arturs Backurs Research Intern Microsoft Research, Language and Intelligent Assistance Jun 2021-Sep 2021 Mentors: Dimitrios Dimitriadis, Robert Sim Research Intern Microsoft Research, Knowledge Technologies and Intelligent Experiences Jun 2020-Sep 2020 Mentor: Robert Sim, Husevin Inan **Graduate Research Assistant** ACT Lab, CSE Department, UC San Diego Sep 2018-Sep 2020 Advisor: Hadi Esmeailzadeh Research Intern Western Digital Co. Research and Development Jun 2019-Sep 2019 Mentor: Anand Kulkarni **Undergraduate Research Assistant** Computer Engineering Department, Sharif University of Technology Sep 2016-Jun 2018 Advisor: Hamid Sarbazi-Azad

AWARDS

Momental Foundation Mistletoe Research Fellowship (MRF) Finalist	2023
Rising Star in Adversarial Machine Learning (AdvML) Award Winner	2022
Rising Stars in EECS	2022
UCSD CSE Excellence in Leadership and Service Award Winner	2022
FAccT Doctoral Consortium	2022
Qualcomm Innovation Fellowship Finalist	2021
NCWIT (National Center for Women & IT) Collegiate Award Winner	2020
National University Entrance Exam in Math (Ranked 249 th of 223,000)	2014
National University Entrance Exam in Foreign Languages (Ranked $57^{\rm th}$ of $119,000$)	2014
National Organization for Exceptional Talents (NODET) (Admitted, ~2% Acceptance Rate)	2008

PUBLICATIONS

Conference

- L. Jiang, K. Rao, S. Han, A. Ettinger, F. Brahman, S. Kumar, N. Mireshghallah, X. Lu, M. Sap, Y. Choi, and N. Dziri, "WildTeaming at Scale: From In-the-Wild Jailbreaks to (Adversarially) Safer Language Models", Advances in Neural Information Processing Systems (NeurIPS), Dec. 2024.
- T. Chen, N. Mireshghallah, A. Asai, S. Min, J. Grimmelmann, Y. Choi, H. Hajishirzi,
 L. Zettlemoyer, and P. W. Koh, "CopyBench: Measuring Literal and Non-Literal Reproduction of Copyright-Protected Text in Language Model Generation", in *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Nov. 2024.
- 3. M. Duan, A. Suri, N. Mireshghallah, S. Min, W. Shi, L. Zettlemoyer, Y. Tsvetkov, Y. Choi, D. Evans, and H. Hajishirzi, "Do Membership Inference Attacks Work on Large Language Models?", in *The First Conference on Language Modeling (COLM)*, Oct. 2024.
- 4. N. Mireshghallah, M. Antoniak, Y. More, Y. Choi, and G. Farnadi, "Trust No Bot: Discovering Personal Disclosures in Human-LLM Conversations in the Wild", in *The First Conference on Language Modeling (COLM)*, Oct. 2024.
- 5. M. Zhang, T. He, T. Wang, N. Mireshghallah, B. Chen, H. Wang, and Y. Tsvetkov, "LatticeGen: A Cooperative Framework which Hides Generated Text in a Lattice for Privacy-Aware Generation on Cloud", in Proceedings of the 2024 Conference of the North American Chapter of the Association for Computational Linguistics (NAACL Findings), Aug. 2024.
- 6. T. Sorensen, J. Moore, J. Fisher, M. Gordon, N. Mireshghallah, C. M. Rytting, A. Ye, L. Jiang, X. Lu, N. Dziri, T. Althoff, and Y. Choi, "A Roadmap to Pluralistic Alignment", in *The Fourty-first International Conference on Machine Learning (ICML)*, Jul. 2024.
- 7. N. Mireshghallah, H. Kim, X. Zhou, Y. Tsvetkov, M. Sap, R. Shokri, and Y. Choi, "Can LLMs Keep a Secret? Testing Privacy Implications of Language Models via Contextual Integrity Theory", in *Proceedings of the Twelfth International Conference on Learning Representations (ICLR Spotlight)*, May 2024.
- 8. X. Tang, R. Shin, H. A. Inan, A. Manoel, **N. Mireshghallah**, Z. Lin, S. Gopi, J. Kulkarni, and R. Sim, "Privacy-Preserving In-Context Learning with Differentially Private Few-Shot

- Generation", in Proceedings of the Twelfth International Conference on Learning Representations (ICLR), May 2024.
- 9. N. Mireshghallah, J. Mattern, S. Gao, R. Shokri, and T. Berg-Kirkpatrick, "Smaller Language Models are Better Black-box Machine-Generated Text Detectors", in *Proceedings of the 18th Conference of the European Chapter of the Association for Computational Linguistics (EACL)*, Mar. 2024.
- J. Forristal, N. Mireshghallah, G. Durrett, and T. Berg-Kirkpatrick, "A Block Metropolis-Hastings Sampler for Controllable Energy-based Text Generation", in *Proceedings of the 27th Conference on Computational Natural Language Learning (CoNLL)*, Dec. 2023.
- 11. N. Mireshghallah, N. Vogler, J. He, O. Florez, A. El-Kishky, and T. Berg-Kirkpatrick, "Non-Parametric Temporal Adaptation for Social Media Topic Classification", in *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Dec. 2023.
- 12. J. Mattern, N. Mireshghallah, Z. Jin, B. Scholkop, M. Sachan, and T. Berg-Kirkpatrick, "Membership Inference Attacks against Language Models via Neighbourhood Comparison", in *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL Findings)*, Jul. 2023.
- 13. N. Mireshghallah, R. Shin, Y. Su, T. Hashimoto, and J. Eisner, "Privacy-Preserving Domain Adaptation of Semantic Parsers", in *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL)*, Jul. 2023.
- 14. **N. Mireshghallah**, A. Backurs, H. A. Inan, L. Wutschitz, and J. Kulkarni, "Differentially Private Model Compression", *Advances in Neural Information Processing Systems (NeurIPS)*, Dec. 2022.
- 15. N. Mireshghallah, K. Goyal, A. Uniyal, T. Berg-Kirkpatrick, and R. Shokri, "Quantifying privacy risks of masked language models using membership inference attacks", in *Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Dec. 2022.
- 16. N. Mireshghallah, A. Uniyal, T. Wang, D. Evans, and T. Berg-Kirkpatrick, "Memorization in NLP Fine-tuning Methods", in *Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Oral Presentation, Dec. 2022.
- 17. N. Mireshghallah, V. Shrivastava, M. Shokouhi, T. Berg-Kirkpatrick, R. Sim, and D. Dimitriadis, "UserIdentifier: Implicit User Representations for Simple and Effective Personalized Sentiment Analysis", in *Proceedings of the 2022 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*, Jul. 2022.
- 18. H. Brown, K. Lee, **N. Mireshghallah**, R. Shokri, and F. Tram'er, "What Does it Mean for a Language Model to Preserve Privacy?", in *Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency (FAccT)*, Jun. 2022.
- 19. N. Mireshghallah, K. Goyal, and T. Berg-Kirkpatrick, "Mix and Match: Learning-free Controllable Text Generation using Energy Language Models", in *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics and the 12th International Joint Conference on Natural Language Processing (ACL)*, May 2022.

- N. Mireshghallah and T. Berg-Kirkpatrick, "Style Pooling: Automatic Text Style Obfuscation for Improved Classification Fairness", in Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP), Oral Presentation, Nov. 2021.
- T. Koker, N. Mireshghallah, T. Titcombe, and G. Kaissis, "U-Noise: Learnable Noise Masks for Interpretable Image Segmentation", in 2021 IEEE International Conference on Image Processing (ICIP), Sep. 2021.
- 22. N. Mireshghallah, H. A. Inan, M. Hasegawa, V. Rühle, T. Berg-Kirkpatrick, and R. Sim, "Privacy Regularization: Joint Privacy-Utility Optimization in Language Models", in Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL), Jun. 2021.
- 23. N. Mireshghallah, M. Taram, A. Jalali, A. T. Elthakeb, D. Tullsen, and H. Esmaeilzadeh, "Not All Features Are Equal: Discovering Essential Features for Preserving Prediction Privacy", in *Proceedings of The Web Conference 2021 (WWW)*, Apr. 2021.
- 24. A. T. Elthakeb, P. Pilligundla, N. Mireshghallah, A. Cloninger, and H. Esmaeilzadeh, "Divide and Conquer: Leveraging Intermediate Feature Representations for Quantized Training of Neural Networks", in *The Thirty-seventh International Conference on Machine Learning* (ICML), Jul. 2020.
- 25. N. Mireshghallah, M. Taram, A. Jalali, D. Tullsen, and H. Esmaeilzadeh, "Shredder: Learning Noise Distributions to Protect Inference Privacy", in *Proceedings of the Twenty-Fifth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, Mar. 2020.

Journal

- 1. A. T. Elthakeb, P. Pilligundla, N. Mireshghallah, A. Yazdanbakhsh, and H. Esmaeilzadeh, "ReLeQ: A Reinforcement Learning Approach for Automatic Deep Quantization of Neural Networks", in *IEEE Micro*, Sep. 2020.
- 2. N. Mireshghallah, M. Bakhshalipour, M. Sadrosadati, and H. Sarbazi-Azad, "Energy-Efficient Permanent Fault Tolerance in Hard Real-Time Systems", in *IEEE Transactions on Computers*, Apr. 2019.

Workshop

- K. Lee, A. F. Cooper, C. A. Choquette-Choo, K. Liu, M. Jagielski, N. Mireshghallah, L. Ahmed, J. Grimmelmann, D. Bau, C. De Sa, et al., "Machine Unlearning Doesn't Do What You Think", Jul. 2024.
- P. Basu, T. Singha Roy, R. Naidu, Z. Muftuoglu, S. Singh, and N. Mireshghallah, "Benchmarking Differential Privacy and Federated Learning for BERT Models", in *Machine Learning for Data Workshop at ICML 2021*, Jun. 2021.
- 3. R. Naidu, A. Priyanshu, A. Kumar, S. Kotti, H. Wang, and N. Mireshghallah, "When Differential Privacy Meets Interpretability: A Case Study", in *Responsible Computer Vision Workshop at CVPR 2021*, Jun. 2021.
- 4. A. Uniyal, R. Naidu, S. Kotti, S. Singh, P. J. Kenfack, **N. Mireshghallah**, and A. Trask, "DP-SGD Vs. PATE: Which Has Less Disparate Impact on Model Accuracy?", in *Machine Learning for Data Workshop at ICML 2021*, Jun. 2021.

5. T. Farrand, N. Mireshghallah, S. Singh, and A. Trask, "Neither Private Nor Fair: Impact of Data Imbalance on Utility and Fairness in Differential Privacy", in *Proceedings of the 2020 ACM SIGSAC Conference on Computer and Communications Security (CCS 2020)*, Privacy-Preserving Machine Learning in Practice workshop (PPMLP), Nov. 2020.

Preprint

- 1. X. Zhou, H. Kim, F. Brahman, L. Jiang, H. Zhu, X. Lu, F. Xu, B. Y. Lin, Y. Choi, **N. Mireshghallah**, R. L. Bras, and M. Sap, "HAICOSYSTEM: An Ecosystem for Sandboxing Safety Risks in Human-AI Interactions", *ArXiv preprint arXiv:2409.16427*, Sep. 2024.
- 2. N. G. Brigham, C. Gao, T. Kohno, F. Roesner, and N. Mireshghallah, "Breaking News: Case Studies of Generative AI's Use in Journalism", ArXiv preprint arXiv:2406.13706, Jun. 2024.
- 3. N. Mireshghallah, A. M. Kassem, O. Mahmoud, H. Kim, Y. Tsvetkov, Y. Choi, S. Saad, and S. Rana, "Alpaca against Vicuna: Using LLMs to Uncover Memorization of LLMs", *ArXiv* preprint arXiv:2403.04801, Mar. 2024.
- 4. M. H. Garcia, A. Manoel, D. M. Diaz, **N. Mireshghallah**, R. Sim, and D. Dimitriadis, "Flute: A scalable, extensible framework for high-performance federated learning simulations", *ArXiv* preprint arXiv:2203.13789, 2022.
- 5. **N. Mireshghallah**, M. Taram, P. Vepakomma, A. Singh, R. Raskar, and H. Esmaeilzadeh, "Privacy in Deep Learning: A Survey", *ArXiv preprint arXiv:2004.12254*, Apr. 2020.

Patent

- 1. N. Mireshghallah and H. Esmaeilzadeh, "METHODS OF PROVIDING DATA PRIVACY FOR NEURAL NETWORK BASED INFERENCE", US Patent 11,288,379, Mar. 2020.
- 2. N. Mireshghallah, H. Esmaeilzadeh, and M. Taram, "METHOD AND SYSTEM OF LEARNING NOISE ON INFORMATION FROM INFERENCES BY DEEP NEURAL NETWORK", US Patent 009062-8413, Oct. 2019.

INVITED TALKS

Stanford Research Institute (SRI) International

Computational Cybersecurity in Compromised Environments (C3E) workshop Sep. 2024 Can LLMs keep a secret? Testing privacy implications of Language Models via Contextual Integrity

LinkedIn Research

Privacy Tech Talk Sep. 2024

Can LLMs keep a secret? Testing privacy implications of Language Models via Contextual Integrity

National Academies (NASEM)

Forum on Cyber Resilience

Aug. 2024

Oversharing with LLMs is underrated: the curious case of personal disclosures in human-LLM conversations

ML Collective

DLCT reading group

Aug. 2024

Privacy in LLMs: Understanding what data is imprinted in LMs and how it might surface!

Carnegie Mellon University

Invited Talk

Jun. 2024

Alpaca against Vicuna: Using LLMs to Uncover Memorization of LLMs

Generative AI and Law workshop, Washington DC Invited Talk What is differential privacy? And what is it not?	Apr. 2024
Meta AI Research Invited $Talk$ Membership Inference Attacks and Contextual Integrity for Language	Apr. 2024
Georgia Institute of Technology Guest lecture for the School of Interactive Computing Safety in LLMs: Privacy and Memorization	Apr. 2024
University of Washington Guest lecture for CSE 484 and 582 courses on Computer Security and Ethics in AI Safety in LLMs: Privacy and Memorization	Apr. 2024
Carnegie Mellon University Guest lecture for LTI 11-830 course on Computational Ethics in NLP Safety in LLMs: Privacy and Memorization	Mar. 2024
Simons Collaboration TOC4Fairness Seminar Membership Inference Attacks and Contextual Integrity for Language	Mar. 2024
University of California, Santa Barbara NLP Seminar Invited Talk Can LLMs Keep a Secret? Testing Privacy Implications of LLMs	Mar. 2024
University of California, Los Angeles NLP Seminar Invited Talk Can LLMs Keep a Secret? Testing Privacy Implications of LLMs	Mar. 2024
University of Texas at Austin Guest lecture for LIN 393 course on Social Applications and Impact of NLP Can LLMs Keep a Secret? Testing Privacy Implications of LLMs	Feb. 2024
Google Brain Google Tech Talk Can LLMs Keep a Secret? Testing Privacy Implications of LLMs	Feb. 2024
University of Washington Allen School Colloquium Can LLMs Keep a Secret? Testing Privacy Implications of LLMs	Jan. 2024
University of Washington eScience Institute Seminars Privacy Auditing and Protection in Large Language Model	Nov. 2023
CISPA Helmholtz Center for Security Invited Talk What does privacy-preserving NLP entail?	Sep. 2023
Max Planck Institute for Software Systems Next 10 in AI Series Auditing and Mitigating Safety Risks in LLMs	Sep. 2023
Mila / McGill University Invited Talk	May 2023

Privacy	Auditing	and	Protection	in	Large	Language	Models

EACL 2023 Tutorial co-instruction Private NLP: Federated Learning and Privacy Regularization	May 2023
Cohere for AI $C4AI$ Community Talk Auditing and Mitigating Safety Risks in Large Language Models	May 2023
LLM Interfaces Workshop and Hackathon Invited $Talk$ Learning-free Controllable Text Generation	Apr. 2023
NDSS Conference Keynote talk for EthiCS workshop How much can we trust large language models?	Feb. 2023
Google Federated Learning Seminar Privacy Auditing and Protection in Large Language Models	Feb. 2023
University of Texas Austin Invited Talk How much can we trust large language models?	Oct. 2022
Johns Hopkins University Guest lecture for CS 601.670 course on Artificial Agents Mix and Match: Learning-free Controllable Text Generation	Sep. 2022
KDD Conference Adversarial ML workshop How much can we trust large language models?	Aug. 2022
Microsoft Research Cambridge Invited Talk What Does it Mean for a Language Model to Preserve Privacy?	Mar. 2022
PriSec ML Interest Group Invited Talk What Does it Mean for a Language Model to Preserve Privacy?	Feb. 2022
University of Maine Guest lecture for COS435/535 course on Information Privacy Engineering Improving Attribute Privacy and Fairness for Natural Language Processing	Dec. 2021
National University of Singapore Invited Talk Style Pooling: Automatic Text Style Obfuscation for Fairness	Nov. 2021
Big Science for Large Language Models Invited Panelist Privacy-Preserving Natural Language Processing	Oct. 2021
Research Society MIT Manipal Cognizance Event Invited Talk Privacy and Interpretability of DNN Inference	Jul. 2021

Privacy and Security in ML Seminars Low-overhead Techniques for Privacy and Fairness of DNNs	Jun. 202	21
Split Learning Workshop Invited Talk Shredder: Learning Noise Distributions to Protect Inference Privacy	Mar. 202	21
University of Massachusetts Amherst Machine Learning and Friends Lunch Privacy and Fairness in DNN Inference	Oct. 202	20
OpenMined Privacy Conference Invited Talk Privacy-Preserving Natural Language Processing	Sep. 202	20
Microsoft Research AI Breakthroughs Workshop Private Text Generation through Regularization	$Sep. \ 202$	20
National Center for Women & IT (NCWIT) Collegiate Award Ceremony Winner Talk Shredder: Learning Noise Distributions to Protect Inference Privacy	Jul. 202	20
TA EXPERIENCE		
CSE Department of UC San Diego CSE 151A (Undergraduate Machine Learning) CSE 251A (Graduate Machine Learning) CSE 276C (Graduate Mathematics for Robotics) CSE 141 (Undergraduate Computer Architecture) CSE 240D (Graduate Accelerator Design for Deep Learning)	Fall 2021 Winter 2021 Fall 2020 Spring 2020 Winter & Fall 2019)
CE Department of Sharif University Digital Electronics, Computer Architecture, Signals and Systems, Probability a	and Statistics, 2016-2018	}
CE Department of Sharif University Digital Electronics, Computer Architecture, Signals and Systems, Probability a Numerical Methods DIVERSITY, INCLUSION & MENTORSHIP		3
CE Department of Sharif University Digital Electronics, Computer Architecture, Signals and Systems, Probability a Numerical Methods	2016-2018 202 202 202 202 2020-202 202 2020-202 202	25 25 22 21 20 23 20 23 20

ORGANIZED EVENTS

Co-organizer of the Generative AI and Law (Gen Law) workshop at ICML	2024		
Co-organizer of the Privacy Regulation and Protection in Machine Learning workshop at ICLR	2024		
Co-organizer of the Private NLP workshop at ACL	2024		
Co-organizer of the Privacy-Preserving AI (PPAI) workshop at AAAI	2024		
Co-organizer of the Generative AI and Law (Gen Law) workshop at ICML	2023		
Co-organizer of the Widening NLP (WiNLP) workshop at EMNLP	2023		
Co-organizer of the Generative $AI + Law$ (GenLaw) workshop at ICML	2023		
Co-organizer of the Private NLP Tutorial at EACL	2023		
Co-organizer of the Ethics in NLP Birds of a Feather session at EMNLP	2022		
Privacy & Fairness Roundtable lead at AFCP workshop at NeurIPS	2022		
Co-organizer of the Broadening Collaborations in ML workshop at NeurIPS	2022		
Co-organizer of the Widening NLP (WiNLP) workshop at EMNLP	2022		
Co-organizer of the Private NLP workshop at NAACL	2022		
Co-organizer of the Federated Learning for NLP workshop at ACL	2022		
Co-organizer of the Widening NLP (WiNLP) workshop at EMNLP	2021		
Co-leader for the "Machine Learning for Privacy: An Information Theoretic Perspective" Break-out session			
at the Women in Machine Learning (WiML) Un-workshop Held at ICML	2021		
Co-organizer of the Privacy-Preserving Machine Learning (PPML) Workshop at MICCAI	2021		
Co-organizer of the Distributed Private Machine Learning (DPML) Workshop at ICLR	2021		
Co-organizer of the SoCal joint Machine Learning and Natural Language Processing Symposium	2021		
Co-leader for the "Feminist Perspectives for Machine Learning & Computer Vision" Break-out session	at the		
Women in Machine Learning (WiML) Un-workshop Held at ICML	2020		

PROFESSIONAL SERVICES

Reviewer for TACL	$2020 ext{-}Present$
Area Chair for EMNLP	2024
PC member for ACM CCS	2024
Reviewer for EACL	2024
Reviewer for CHI	2024
Reviewer for AAAI	2023, 2024
Reviewer for NeurIPS	2020-2024
Reviewer for ICML	2020-2024
Reviewer for ICLR (Outstanding Reviewer Award in 2021)	2021-2025
Reviewer for FAccT	2023, 2024
Ethics PC member for EMNLP	2022
Reviewer for NeurIPS Workshop Proposals	2023
Reviewer for INLG	2023
Reviewer for TMLR Journal	$2022 ext{-}Present$
PC member for the AFCP workshop at NeurIPS	2022
PC member for the TSRML Workshop at NeurIPS	2022
Reviewer for NAACL Student Research Workshop (SRW)	2022
Reviewer for IEEE S&P magazine	$2021 ext{-}Present$
Reviewer for CCS Poster Sessions	2021
Shadow PC member for IEEE Security and Privacy Conference Winter	2021
Artifact Evaluation Program Committee Member for USENIX Security	2021
Security & Privacy Committee Member and Session Chair for Grace Hopper Celebration (GH	(C) 2020

Reviewer for ACM TACO Journal	2020-Present
Reviewer for IEEE TC Journal	2020-Present
Program Committee Member for Latinx in AI Research Workshop at ICML	2020
Program Committee Member for the Workshop on Human Interpretability in ML at ICML	2020
Program Committee Member for the ML for Computer Architecture and Systems Workshop at	ISCA 2020
Artifact Evaluation Program Committee Member for ASPLOS	2020