# Jared Fernandez

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## EDUCATION

**Carnegie Mellon University: School of Computer Science**                    2020 – Expected 2026
Ph.D. in Computer Science (Language and Information Technology)
*Advisors:* Yonatan Bisk & Emma Strubell

**Northwestern University**, *Magna cum Laude*                    2015 –2019
B.S. in Computer Science with Honors & B.S. in Electrical Engineering
*Advisors:* Doug Downey & Thrasos Pappas

## RESEARCH EXPERIENCE

**Visiting Researcher**                    2024
*Meta, Fundamanetal AI Research (FAIR)*                    *New York, NY*

**Visiting Researcher**                    2023
*Allen Institute for Artificial Intelligence*                    *Remote*

**Graduate Student Researcher**                    2020 – Present
*Carnegie Mellon University, Language Technologies Institute*                    *Pittsburgh, PA*

**Visiting Researcher**                    2022
*Google Research, Perception*                    *Mountain View, CA*

**Undergraduate Researcher**                    2018 – 2019
*Northwestern University, Pappas Group*                    *Evanston, IL*

**Undergraduate Researcher**                    2017 – 2019
*Northwestern University, WebSAIL Group*                    *Evanston, IL*

**Research Intern**                    Summer 2013, 2014
*Stanford University: School of Earth Sciences, Cosmogenic Radiation Laboratory*                    *Stanford, CA*

## INDUSTRY EXPERIENCE

**Software Engineer**                    2019 – 2020
*Google, Search Notifications*                    *Mountain View, CA*

**Software Engineering Intern**                    Summer 2019
*Google, Dialogflow NLU*                    *Mountain View, CA*

**Software Engineering Intern**                    Summer 2018
*Google, Assistant on Android Auto*                    *Mountain View, CA*

**Research Support Intern**                    Summer 2015
*SLAC National Accelerator Laboratory*                    *Menlo Park, CA*

## FELLOWSHIPS & AWARDS

**NSF Graduate Research Fellowship**                    2021 – 2024

**Carnegie Mellon University Research Fellowship**                    2020 – 2021

**Departmental Honors,** *Northwestern University*                    2019

**Tau Beta Pi,** *Northwestern University*                    2018

**Eta Kappa Nu,** *Northwestern University*                    2018

**Undergraduate Research Grant,** *Northwestern University*                    2017

## Peer-Reviewed Publications

1. **Empirically-Calibrated H100 Node Power Models for Accurate AI Training Energy Estimation**.
   Alex C. Newkirk, **Jared Fernandez**, Jonathan Koomey, Imran Latif, Emma Strubell, Arman Shehabi, Constantine Samaras
   *Environmental Research: Energy (Environ. Res: Energy), 2025*.

2. **Hardware Scaling Trends & Diminishing Returns in Large-Scale Distributed Training**.
   **Jared Fernandez**, Luca Wehrstedt, Leonid Shamis, Mostafa Elhoushi, Kalyan Saladi, Yonatan Bisk, Emma Strubell, Jacob Kahn
   *Transactions on Machine Learning Research (TMLR), 2025*.

3. **Energy Considerations of Large Language Model Inference & Efficiency Optimizations**.
   **Jared Fernandez**\*, Clara Na\*, Vashisth Tiwari\*, Yonatan Bisk, Sasha Luccioni, Emma Strubell
   *The 63rd Annual Meeting of the Association for Computational Linguistics (ACL), 2025*.

4. **Holistically Evaluating the Environmental Impact of Creating Language Models**.
   Jacob Morrison, Clara Na, **Jared Fernandez**, Tim Dettmers, Emma Strubell, Jesse Dodge
   *International Conference on Learning Representations (ICLR), 2025*.

5. **Gradient Localization Improves Lifelong Pretraining of Language Models**.
   **Jared Fernandez**, Yonatan Bisk, Emma Strubell
   *Findings of the ACL: EMNLP (EMNLP Findings), 2024*.

6. **The Framework Tax: Disparities Between Inference Efficiency in Research & Deployment**.
   **Jared Fernandez**, Jacob Kahn, Clara Na, Yonatan Bisk, Emma Strubell
   *Workshop on Efficient Systems for Foundation Models at ICML (ES-FOMO), 2023.*
   *Empirical Methods in Natural Language Processing (EMNLP), 2023*.

7. **CIGLI: Conditional Image Generation from Language & Image**.
   Xiaopeng Lu, Lynette Ng, **Jared Fernandez**, Hao Zhu
   *Workshop on Closing the Loop Between Vision and Language at ICCV (CLVL), 2021*.

8. **Generative Data Augmentation for Commonsense Reasoning**.
   Yiben Yang, Chaitanya Malaviya, **Jared Fernandez**, Swabha Swayamdipta, Ronan Le Bras, Ji-Ping Wang, Chandra Bhagavatula, Yejin Choi and Doug Downey
   *Findings of the ACL: EMNLP (EMNLP Findings), 2020*.

9. **CODAH: An Adversarially Authored Question-Answer Dataset for Common Sense**.
   Michael Chen, Mike D'Arcy, Alisa Liu, **Jared Fernandez**, and Doug Downey
   *Workshop on Evaluating Vector Space Representations for NLP (RepEval), 2019*.

10. **Sampling Informative Training Data for RNN Language Models**.
    **Jared Fernandez** and Doug Downey.
    *Association of Computational Linguistics: Student Research Workshop (ACL-SRW), 2018*.

11. **VecShare: A Framework for Sharing Word Representation Vectors**.
    **Jared Fernandez**, Zhaocheng Yu, and Doug Downey
    *Empirical Methods in Natural Language Processing (EMNLP), 2017*.

## Non-Archival Workshops and Preprints

1. **Practical Evaluation of Machine Learning Efficiency Requires Model Life Cycle Assessment**.
   **Jared Fernandez**, Clara Na, Yonatan Bisk, Constantine Samaras, Emma Strubell
   *Workshop on Socially Responsible Language Modelling Research at the Conference on Language Modeling (SoLaR), 2025*.

2. **Evaluating the Environmental Impact of Language Models with Life Cycle Assessment**.
   **Jared Fernandez**\*, Clara Na\*, Yonatan Bisk, Emma Strubell
   *Climate Change AI Workshop (CCAI at ICLR), 2025*. ***Best Paper: Proposals Track.***

3. **Efficiency Pentathlon: A Standardized Arena for Efficiency Evaluation**.
   Hao Peng, Qingqing Cao, Jesse Dodge, Matthew E. Peters, **Jared Fernandez**, Tom Sherborne, Kyle Lo, Sam Skjonsberg, Emma Strubell, Darrell Plessas, Iz Beltagy, Evan Pete Walsh, Noah A. Smith, Hannaneh Hajishirzi
   *Preprint (Arxiv), 2023*.

4. **Adapting to Gradual Distribution Shifts with Continual Weight Averaging**.
   **Jared Fernandez**, Saujas Vadaguru, Sanket Vaibhav Mehta, Yonatan Bisk, Emma Strubell
   *Workshop on High-Dimensional Learning Dynamics at ICML (HiDL), 2023*.

## INVITED TALKS

1. **Energy Considerations in Efficient Language Model Development and Deployment**
   *Seagate Technology* ......................................................................... October 2025
   *Bosch Research* ..................................................................................... June 2025

2. **Sampling Informative Training Data for RNN Language Models**
   *Midwest Speech and Language Days* ................................................. May 2018

## TEACHING ASSISTANTSHIPS

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|---|---:|
| **On-Device Machine Learning** *with Profs. Yonatan Bisk & Emma Strubell* | Fall 2023, 2024 |
| **Machine Learning** *with Prof. Doug Downey* | Spring 2018 |
| **Discrete Math** *with Prof. Aravindan Vijayaraghavan* | Fall 2017 |
| **Artificial Intelligence** *with Prof. Michael Rubenstein* | Spring 2017 |

## DEPARTMENTAL SERVICE

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|---|---:|
| **Graduate Application Support Program Mentor,** *Carnegie Mellon University* | 2020 − 2022 |
| **Undergraduate & Graduate Student Mentor,** *Carnegie Mellon University* | 2020 − 2022 |
| **Undergraduate Mentor,** *Northwestern Eta Kappa Nu* | 2019 |
| **External Vice President,** *Northwestern IEEE Student Chapter* | 2018 |
| **Technical Program Director,** *Northwestern IEEE Student Chapter* | 2017 |

## PROFESSIONAL SERVICE

**Reviewing**
ACL Rolling Review ......................................................................... 2024, 2025
NeurIPS ............................................................................. 2022, 2024, 2025
ICLR .......................................................................................... 2022, 2024
ICML .............................................................................................. 2023
ACM Multimedia ..................................................................................... 2022

**Student Volunteer:** EMNLP 2017, ACL 2018