

# Alex Wilf

awilf@cs.cmu.edu | [abwilf.github.io](https://abwilf.github.io)

## EDUCATION

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### Carnegie Mellon University

Sep 2021 - Present

*PhD Student in Language Technologies Institute, School of Computer Science*

- Courses: Machine Learning, Advanced Topics in Multimodal Machine Learning, Natural Language Processing, Question Answering, Artificial Social Intelligence
- Cumulative GPA: 4.08 / 4.0

### University of Michigan, Ann Arbor

*B.S. in Computer Science, Phi Beta Kappa*

Sep 2015 - Dec 2019

## PUBLICATIONS

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- **Alex Wilf**, Pranjal Aggarwal, Bryan Parno, Daniel Fried, Louis-Philippe Morency, Paul Pu Liang, Sean Welleck. “Propose, Solve, Verify: Self-Play Through Formal Verification”. **arXiv 2025**.
- Gyeongwon James Kim, **Alex Wilf**, Louis-Philippe Morency, Daniel Fried. “From Reproduction to Replication: Evaluating Research Agents with Progressive Code Masking”. **arXiv 2025**.
- Alex Tianyi Xu, **Alex Wilf**, Paul Pu Liang, and Alexander Obolenskiy, Daniel Fried, and Louis-Philippe Morency. “Comparative Knowledge Distillation”. **WACV 2025**.
- **Alex Wilf**, Sihyun Shawn Lee, Paul Pu Liang and Louis-Philippe Morency. “Think Twice: Perspective-Taking Improves Large Languages Models’ Theory-of-Mind Capabilities”. **ACL 2024**.
- Paul Pu Liang, Chun Kai Ling, Yun Cheng, Alexander Obolenskiy, Yudong Liu, Rohan Pandey, **Alex Wilf**, Louis-Philippe Morency, Russ Salakhutdinov. “Multimodal Learning Without Labeled Multimodal Data: Guarantees and Applications”. **ICLR 2024**.
- **Alex Wilf\***, Syeda Akter\* et al. "Difference-Masking: Choosing What to Mask in Continued Pretraining." **Findings of EMNLP (2023)**.
- **Alex Wilf\***, Martin Q. Ma\*, Paul Pu Liang, Amir Zadeh, and Louis-Philippe Morency. “Face-to-Face Contrastive Learning for Social Intelligence Question-Answering”. **Oral Presentation at FG 2023**.
- **Alex Wilf** and Emily Mower Provost. “Dynamic Layer Customization for Noise Robust Speech Emotion Recognition in Heterogeneous Condition Training.” 2021. **Oral Presentation at ACII 2021**.

## EXPERIENCE

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### Research Scientist Intern

*Meta, Reality Labs Research*

May 2024 - Dec 2024

Redmond, WA

- Worked on a project to improve digital agent output reward models (ORM's)
- Through trajectory sampling & oracle test case labelling, we were able to finetune ORM's to improve from .38 to .87 F1 score, a **128.39%** relative improvement.
- We found that PRM's for digital agent tasks are much more challenging, and finetuning in this way does not significantly improve performance.
- We open source our framework for running experiments, which leverages massive CPU parallelization to amortize long-running emulation operations such as state resets, increasing GPU utilization and leading to a **10x reduction in experimental time**.

### **Graduate Research Assistant**

Sep 2021 - Present

*MultiComp Lab, Carnegie Mellon University*

Pittsburgh, PA

- Researching multimodal artificial social intelligence with Professor Louis-Philippe Morency.
- Created a novel deep learning architecture using a multimodal graph neural network (FG '23).
- Developed a novel masking strategy for large multimodal foundation models during continued pretraining (EMNLP '23).
- Invented a method for distilling the knowledge in large vision "teacher" models to small, lightweight "student" models with access to few calls to the teacher (arxiv '23).

### **Research Assistant**

Jan 2020 - May 2021

*Computational Human Artificial Intelligence Lab, University of Michigan*

Ann Arbor, MI

- Researched deep learning methods for deployable automatic speech emotion recognition with Professor Emily Mower Provost.
- Designed a novel task and approach for noise robust speech emotion recognition, showed significant improvements over baseline.

### **Software Engineering Intern**

May 2018 - Aug 2018

*Uber*

San Francisco, CA

- Completed full stack project building search into Uber for Business dashboard and supporting database infrastructure.
- Organized and led conversations with three different teams to design an efficient data storage and retrieval solution.
- Implemented back end functionality using Go, front end functionality using React, Redux, Node/Javascript.

### **President**

May 2018 - May 2019

*University of Michigan Men's Glee Club*

Ann Arbor, MI

- Managed \$500,000 budget, 12 person executive team, 95 person glee club and alumni relations with over 2,500 alumni.
- Raised over \$100,000 for international tour, increased profits from concerts, digitized recordings, created alumni database and web store with new merchandise.
- Increased community outreach by raising over 36,000 meals for charity and performing for inmates and hospital patients.

## **Service**

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Reviewer: ARR February 2024

Co-organizer: 2nd Workshop on Artificial Social Intelligence @ ICCV 2023

Co-organizer: 4th Workshop on Multimodal Artificial Intelligence @ NAACL 2022

## TEACHING

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**Teaching Assistant, Carnegie Mellon University**  
*11-777 Multimodal Machine Learning*

Sep 2022 - Dec 2022  
Pittsburgh, PA

**Teaching Assistant, University of Michigan**  
*EECS 492: Introduction to Artificial Intelligence*

Sep 2019 - Dec 2019  
Ann Arbor, MI

## HONORS AND AWARDS

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| The Hugh G. Rumler Prize                                 | 2019       |
| Phi Beta Kappa   | 2019       |
| EECS Scholar   | 2018, 2019 |
| Dewey, Ramsey, Llangollen Scholarships (Men's Glee Club) | 2018       |
| James B. Angell Scholar                                  | 2017, 2018 |
| Barger Leadership Institute Capstone Award               | 2017       |
| University Honors  | 2016-2019  |
| Grand Prize (EECS 183 Showcase)                          | 2016       |

## TECHNICAL SKILLS

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Programming Languages: Python, C++, Javascript, Go  
Libraries and Tools: Tensorflow, PyTorch, NumPy, Git