

ERIC SLYMAN

Ph.D. student at the intersection of multimodal AI, human-computer interaction, and fairness

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EDUCATION

Ph.D., Artificial Intelligence & Computer Science – Oregon State University Sep. 2021 - June 2026
Norman & Evelyn Wildish Distinguished Graduate Fellow [\[0.13% invitation rate\]](#) GPA: 4.00/4.00
Outstanding Scholars Program [\[6% invitation rate\]](#)
Committee: **Stefan Lee**, Minsuk Kahng, Margaret Burnett, Weng-Keen Wong, Yelda Turkan

B.S./M.S., Computer Science – Western Washington University Sep. 2015 - Dec. 2020
Accelerated Master's Fast Track Program GPA: 3.78 (BS), 4.00 (MS)/4.00

RESEARCH EXPERIENCE

Graduate Researcher Sep. 2021 - Present
Advisers: Stefan Lee, Minsuk Kahng (previous co-advisor) *Oregon State University*

- Evaluated common Vision and Language (ViL) model pruning and quantization techniques for induced fairness disparities
- Constructed dashboards to expose representational biases in ViL models trained on large web-crawled data
- Developed interactive ViL clustering algorithms to aid in the creation of semantically aligned subgroups

Research Intern, Media Intelligence Lab Jun. 2022/23/24 - Sep. 2022/23/24
Advisers: Kushal Kafle, Scott Cohen *Adobe Research*

- Proposed a novel fair deduplication algorithm to mitigate subgroup disparities induced by dataset pruning
- Developed an interactive interface enabling users to rapidly develop behavioral tests for ViL models
- Coded expert judgments of model performance to determine generally expected model competencies
- Trained LAION-scale CLIP models distributed on 100+ GPUs

Post-Master's Research Associate Jan. 2021 - Sep. 2021
Advisers: Karl Pazdernik, Tim Doster *Pacific Northwest National Laboratory*

- Researched robust audiovisual fusion for person verification with varying modality corruptions
- Developed a differentiable rendering pipeline over PyTorch 3D for discovering natural adversarial examples
- Participated in STEM outreach with PNNL STEM Ambassadors as a public science communicator

Graduate Research Assistant Dec. 2017 - Dec. 2020
Adviser: Brian Hutchinson *Western Washington University*

- Researched fine-grained classroom activity detection from audio
- Researched spatio-temporal generative adversarial Earth system model (ESM) emulation
- Investigated ImageNet error via iterative unsupervised clustering to expose low-performing subgroups

Research Intern, National Security Internship Program (NSIP) July 2019 - Sep. 2019
Adviser: Andrew Avila *Pacific Northwest National Laboratory*

- Researched few-shot object detection and segmentation for large scale image sort and summary
- Developed an algorithm to produce learned image attention masks for use in few-shot image classification
- Utilized Prototypical Nets, Feature Pyramid Nets (FPN), Single-Shot Object Detectors (SSD, YOLOv3, RetinaNet)

PAPERS & PATENTS

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- [P1] Z. Yang, X. Shi, **E. Slyman**, S. Lee “Adversarial Environment Attacks on Vision-and-Language Navigation Agents,” Neural Information Processing Systems (NeurIPS), 2024. [\[Under Review\]](#)
- [P2] **E. Slyman**, S. Cohen, and K. Kafle. “Generating And Modifying Digital Image Databases Through Fairness Deduplication,” US Patent Pending, 2024.
- [P3] **E. Slyman**, S. Lee, S. Cohen, and K. Kafle. “FairDeDup: Detecting and Mitigating Vision-Language Fairness Disparities in Semantic Dataset Deduplication,” Computer Vision and Pattern Recognition (CVPR), 2024. [\[ericslyman.com/fairdedup\]](https://ericslyman.com/fairdedup)
Also presented at the workshop on What is Next in Multi-Modal Foundation Models? (MMFM @ CVPR)

- [P4] **E. Slyman**, K. Kafle, and S. Cohen. “VALET: Vision-And-Language Testing with Reusable Components,” NeurIPS Queer in AI Workshop (QAI), 2023. Extended Abstract. [\[ericslyman.com/assets/pdf/valet.pdf\]](https://ericslyman.com/assets/pdf/valet.pdf)
- [P5] **E. Slyman**, M. Kahng, and S. Lee. “VLSlice: Interactive Vision-and-Language Slice Discovery,” International Conference on Computer Vision (ICCV), 2023. [\[ericslyman.com/vlslice\]](https://ericslyman.com/vlslice)
- [P6] D. Claborn, **E. Slyman**, and K. Pazdernik. “On the Behavior of Audio-Visual Fusion Architectures in Identity Verification Tasks,” arXiv preprint, 2023. [\[arxiv.org/abs/2311.05071\]](https://arxiv.org/abs/2311.05071)
- [P7] T. Nowak, **E. Slyman**. “AdvPose: Generating Realistic Adversarial Scenes Through Object Pose Manipulation,” PNNL - Private Controlled Venue, 2022.
- [P8] A. Ayala, C. Drazic, S. Bassetti, **E. Slyman**, B. Nieva, P. Wolters, K. Bittner, C. Tebaldi, B. Kravitz, and B. Hutchinson. “Conditional Emulation of Global Precipitation With Generative Adversarial Networks,” ICLR workshop on AI for Earth and Space Science (AI4ESS), 2022. [\[ai4earthscience.github.io\]](https://ai4earthscience.github.io)
- [P9] **E. Slyman**, C. Daw, M. Skrabut, A. Usenko, and B. Hutchinson. “Fine-Grained Classroom Activity Detection from Audio with Neural Networks,” AAAI Workshop on Artificial Intelligence for Education (AI4ED), 2022. [\[arxiv.org/abs/2107.14369\]](https://arxiv.org/abs/2107.14369)
- [P10] A. Ayala, C. Drazic, **E. Slyman**, P. Wolters, B. Nieva, B. Hutchinson, C. Tebaldi, and B. Kravitz. “Conditioned Emulation of Global Climate Models With Generative Adversarial Networks,” NOAA Workshop on Leveraging AI in Environmental Sciences, 2021.

INVITED TALKS

Apple	Vision Pro R&D	Scaling Human Oversight for Fair Large Vision-Language Models	2024
OSU	State of Diversity	Bias and Representation in Multimodal AI	[video] 2024
Google	People+AI Research	Auditing Vision-Language Bias With VLSlice	2023
OSU	Board of Trustees	Social Bias in Artificial Intelligence	2023
OSU	Graduate Showcase	Bias Discovery in Vision-and-Language Artificial Intelligence	[video] 2023
PNNL	Computing Colloquium	Corruption Tolerant Audiovisual Embeddings for Person Verification	2021
WWU/PNNL	W2D2S2	Fine-Grained Classroom Activity Detection	2021
PNNL	Computing Colloquium	Few-Shot Image Segmentation Through Object Recognition	2019
WWU	Distinguished Lecture	Machine Learning for Classroom Analysis	2019

HONORS & AWARDS

Google/OSU	One of two students university-wide nominated to the Google PhD Fellowship	2024
OSU	Invited Poster, AI Week Global Futures Forum Reception	[web] 2024
OSU	Best Poster, EECS Department AI Meetup for Industry and Alumni	[web] 2024
CvF/IEEE	DEI Grant, Computer Vision & Pattern Recognition (CVPR)	2024
OSU	Selected for Featured Program in <i>State of Diversity</i> at Oregon State	[video] 2024
CvF/IEEE	DEI Grant, International Conference on Computer Vision (ICCV)	2023
Adobe	Category Winner and 2nd Best Overall, Intern Code Quality Jam	2022
OSU	Edith McDougall Scholarship	2022
OSU	Norman & Evelyn Wildish Distinguished Graduate Fellowship	2021
WWU	Academic Excellence in Computer Science Award	2019, 2021
ACM	Alumni Division Winner, WWU Hackathon	2021
WWU	Track Global Fellowship in Computer Science	2019, 2020
ACM	Travel Grant, ACM FAT* (Now ACM FAccT)	2020
WWU	Travel Grant, NeurIPS	2019
WWU	Academic Honors, Magna Cum Laude	2019
WWU	Susan Brown Advancing Technology Education Scholarship	2019
ACM	Best Presentation, WWU Hackathon	2018

MEDIA COVERAGE

Orange	Hello Future	<i>Coming soon...</i>	[article] 2024
OSU	Daily Barometer	<i>Coming soon...</i>	[article] 2024
OPB	Think Out Loud	Oregon and Washington graduate students tackle problem of bias in AI	[radio] 2024
JPR	Jeffere. Exchange	OSU researcher works to screen the bias out of AI	[radio] 2024
KLCC	Science & Tech.	OSU student heads research in developing anti-bias practices for AI	[radio] 2024
OSU	Newsroom	Researchers [...] aim to make AI systems less socially biased	[article] 2024
OSU	Inst. Diversity	Eric Slyman works to address fairness and representation in AI	[article] 2024
OSU	Taking Action	Addressing Bias in AI: Eric Slyman builds tools to where [...]	[article] 2023

SERVICE

Reviewing

- IEEE Visualization Conference (VIS) 2024
- IEEE / CvF Computer Vision and Pattern Recognition (CVPR) 2024
- What is Next in Multimodal Foundation Models Workshop (MMFM @ CVPR) 2024
- Conference on Neural Information Processing Systems (NeurIPS) 2023
- Transactions on Machine Learning Research (TMLR) 2023
- ACM Conference on Human Factors in Computing Systems (CHI) 2022
- AAAI Conference on Artificial Intelligence (AAAI) 2022

Outreach

- Co-organizer & panelist - “An exploration of navigating academic spaces as nonbinary,” oSTEM 2024
- Founded mentoring program for underserved students applying to OSU AI [aigsa.club/aiaasp] 2022
- PNNL STEM Ambassador - Speaking in 6-12th grade classrooms on STEM pathways [pnnl.gov/stem-outreach] 2021

Co-President

Supervisor: Stefan Lee

July 2021 - Present
OSU AI Graduate Student Association

- Elected leadership position in club of 250+ graduate EECS students [aigsa.club]
- Lead organizer on 10+ major events/year, weekly reading groups, and outreach programs
- Organized lightning talks and poster session for AI Week [dri.oregonstate.edu/ai-week]

Graduate Ambassador

Supervisor: Glencora Borradaile

Sep. 2023 - Sep. 2024
OSU College of Engineering

- Supporting recruitment and retention with emphasis on supporting underserved students
- Providing feedback to the Associate Dean for Graduate Programs on graduate-student related initiatives
- Organizing development events for networking, career advancement, and personal and professional growth

Early-Career Professional Mentor

Supervisor: Perry Fizzano

Sep. 2020 - Sep. 2022
WWU CS/M Scholars

- Invited mentor for a NSF funded program supporting women, underrepresented minorities, and first generation students in pursuit of degrees in computer science and math

OTHER RELEVANT EXPERIENCE

Graduate Teaching Assistant

Supervisor: Stefan Lee, Margaret Burnett

Sep. 2023 - Present
Oregon State University

- AI 539 Natural Language Processing With Deep Learning
- CS 567 Lab Studies in Software Engineering & HCI
- CS 434 Machine Learning & Data Mining

AI Marketing Engineer Intern

Supervisor: Siddharth Sharma

June 2020 - Sep. 2020
NVIDIA

- Owned technical marketing research for Jarvis ConvAI framework to inform product positioning
- Performed hands-on analysis of SOTA ConvAI models in order to identify their strengths and weaknesses
- Surveyed literature of ConvAI technologies including 100+ NLU/NLP, ASR, and TTS papers, for key stakeholders

Graduate Teaching Assistant

Supervisor: Brian Hutchinson

Sep. 2019 - June 2020
Western Washington University

- CS 597 Deep Learning
- CS 301 Formal Languages & Functional Programming
- CS 241 Data Structures
- CS 141 Computer Programming I
- CS 102 Computer-Mediated Communications