

HOIN JUNG

Purdue University, West Lafayette, IN, USA

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EDUCATION

Purdue University

Ph.D. in Electrical and Computer Engineering

· Expected Graduation: May 2027

West Lafayette, IN, USA

Jan. 2023 – Present

Seoul National University

M.S. in Computational Science and Technology

· Thesis: “Local-Ensemble Graph Collaborative Filtering with Spectral Co-Clustering”

Seoul, Korea

Sept. 2020 – Aug. 2022

Korea Aerospace University

B.E. in Aerospace & Mechanical Engineering

· Major of Aircraft System Engineering

Goyang, Korea

Mar. 2010 – Feb. 2014

RESEARCH INTERESTS

Trustworthy AI

- Enhancing the trustworthiness of multimodal foundation models across a range of generative and discriminative tasks. My work addresses key challenges in bias and factuality—for example, mitigating harmful stereotypes and reducing object hallucinations—to enable safer and more reliable AI.
- My research focuses on developing lightweight and efficient post-hoc methods to align model behavior, such as through targeted adjustments to a model’s internal features and output logits, which avoids the need for costly full-scale retraining.
- While my work is grounded in general-purpose vision-language models, I am also applying these alignment techniques to specialized and high-stakes domains, including remote sensing and medical AI.

WORK EXPERIENCE

Heterogeneous Integration Design Institute

Research Assistant, Elmore ECE Emerging Frontiers Center

- Designed an automatic generative designer for multi-band planar antenna.
- Engineered an explainable model for the ML-based EM simulation via SHAP values.

West Lafayette, IN, USA

Jan. 2023 – Present

Samsung Research America

Research Scientist Intern

- Collaborated with engineers as a research scientist intern on AI-driven Smart TV solutions.
- Designed an automatic keyboard navigation system powered by a vision-language model, designed for real-world deployment across Smart TV applications.

Irvine, CA, USA

May. 2025 – Aug. 2025

Samsung Electronics

Engineer, R&D Team, Department of Digital Appliance

- Developed the thermo-fluid performance of freezing system for brand-new refrigerator.
- Analyzed and optimized refrigeration cycle control system to reduce the power usage.

Suwon, Korea

Aug. 2017 – Aug. 2020

ROK Air Force

Lieutenant, Aircraft Maintenance Officer, The 19th Fighter Wings

- Managed aircraft line maintenance and administered ground safety department for the military base.

Chungju, Korea

Jun. 2014 – May. 2017

PUBLICATIONS

1. T.Jang, **H.Jung**, and X.Wang, “Target Bias Is All You Need: Zero-Shot Debiasing of Vision-Language Models with Bias Corpus”, *International Conference on Computer Vision (ICCV)*, 2025.
2. **H.Jung**, J.Chai, and X.Wang, “Adversarial Latent Feature Augmentation for Fairness”, *International Conference on Learning Representations (ICLR)*, 2025.
3. H.Lee, **H.Jung**, and S.Bae, “Framing Korea: the role of international student YouTubers in shaping destination perceptions”, *Current Issues in Tourism*, 2025.
4. **H.Jung** and X.Wang, “Towards On-the-Fly Novel Category Discovery in Dynamic Long-Tailed Distributions”, *Winter Conference on Applications of Computer Vision (WACV)*, 2025.
5. **H.Jung** and X.Wang, “Fairness-Aware Online Positive-Unlabeled Learning”, *Empirical Methods in Natural Language Processing (EMNLP)*, Industry Track, 2024.
6. **H.Jung**, T.Jang, and X.Wang, “A Unified Debiasing for Vision-Language Model across Modalities and Tasks”, *Neural Information Processing Systems (NeurIPS)*, 2024. **(Spotlight)**
7. **H.Jung**, V.Nascimento, H.Liu, X.Wang, C.K.Koh, and D.Jiao, “Explainable Planar Multiband Antenna Designer with Wasserstein Generative Adversarial Network”, *IEEE International Symposium on Antennas and Propagation*, 2024. **(Oral Presentation)**
8. **H.Jung**, H.S.Choi, and M.Kang, “Boundary Enhancement Semantic Segmentation for Building Extraction From Remote Sensed Image”, *IEEE Transactions on Geoscience and Remote Sensing*, 2021.

PAPERS UNDER REVIEW

1. **H.Jung**, and X.Wang, “Beyond Chunking: Efficient Global Pooling for Holistic Long-Document Representation”, *International Conference on Learning Representations (ICLR)*, 2026.
2. **H.Jung**, S.Lu, D.Wang, and X.Wang, “Reliable Image Quality Evaluation and Mitigation of Quality Bias in Generative Models”, *International Conference on Learning Representations (ICLR)*, 2026.
3. **H.Jung**, J.Chai, and X.Wang, “Adaptive Logit Adjustment for Debiasing Multimodal Language Models”, *International Conference on Learning Representations (ICLR)*, 2026.
4. S.Lu, **H.Jung**, Z.Fang, and X.Wang, “Fair Diffusion Sampling without Demographics,” *International Conference on Learning Representations (ICLR)*, 2026.
5. C.Han, Y.Sim, **H.Jung**, J.Lee, H.Lee, YS.Kang, S.Woo, G.Kim, HW.Park, and M.Jun, “IMPACT: Industrial Machine Perception via Acoustic Cognitive Transformer”, *International Conference on Learning Representations (ICLR)*, 2026.
6. **H.Jung**, J.Liu, A.Rao, H.Kim, X.Zhao, A.Chandra, and M.Sarkis, “TVAgent: A lightweight Vision-Language-Model for TV GUI Agent”, *Innovative Applications of Artificial Intelligence (IAAI)*, 2026.
7. **H.Jung**, V.Nascimento, H.Liu, X.Wang, C.K.Koh, and D.Jiao, “Explainable and Automated Antenna Designer with Generative AI”, *IEEE Transactions on Antennas and Propagation*, 2025.

AWARDS AND SCHOLARSHIP

Outstanding Reviewers (Top 5%), CVPR 2025	Jun. 2025
Purdue Graduate Student Government Travel Grant	Nov. 2024
NeurIPS 2024 Scholar Award	Oct. 2024
NeurIPS 2024 Spotlight Paper (Top 2.5%)	Oct. 2024
Future Industry Talent Graduate Scholarship, <i>Hyundai Motor Chung Mong-Koo Foundation</i>	Fall 2021 – Spring 2022

ACADEMIC SERVICE

Conference Reviewing & Program Committees

- Program Committee: AAAI (2025, 2026)
- Reviewer: ICLR (2026), CVPR (2025, 2026), WACV (2026), NeurIPS (2025), SafeMM-AI Workshop (ICCV 2025), ECCV (2024), AAAI (2024), KDD (2024)

Journal Reviewing

- IEEE Transactions on Geoscience and Remote Sensing

University Service

- Grant Review and Allocation Committee, Purdue Graduate Student Government

LEADERSHIP

Mentor, Purdue ECE G-LaMP (Graduate Leadership and Mentorship Program) (2025-2026)

Co-Chair, ICON Student Research Conference, Purdue University (2026)

Vice President, Students Government, Korea Aerospace University (2013)

PRESENTATIONS

1. “Adaptive Logit Adjustment for Debiasing Multimodal Language Models” Mar. 2025
Poster, Purdue ECE Open House Symposium
2. “A Unified Debiasing Approach for Vision-Language Models across Modalities and Tasks” Dec. 2024
Spotlight Poster, Neural Information Processing Systems (NeurIPS 2024)
3. “An Efficient and Unified Debiasing Approach for Vision-Language Models across Modalities and Tasks” Jul. 2024
Lightning Talk, Fast Machine Learning for Science Conference 2024
4. “Explainable Planar Multiband Antenna Designer with Wasserstein Generative Adversarial Network” Jul. 2024
Oral, 2024 IEEE International Symposium on Antennas and Propagation
5. “Boundary Improvement Module for Binary Semantic Segmentation in Remote Sensing” Jun. 2021
Oral, Korean Society for Industrial and Applied Mathematics (KSIAM)
6. “Segmentation model for tracking building in satellite imagery” Nov. 2020
Poster, Korean Society for Industrial and Applied Mathematics (KSIAM)

TEACHING EXPERIENCE

ECE 570 Artificial Intelligence

Teaching Assistant, Electrical & Computer Engineering

Purdue University, West Lafayette, IN

Fall 2024, Spring 2025

- Held office hours and led student projects across three course sections, serving a total of 545 students.

Computer Literacy & Programming (Python)

Instructor, Language Education Institute

Seoul National University, Seoul, Korea

Mar. 2021 – Jul. 2022

- Designed and delivered a Python programming course for beginner-level students for three semesters.

L0444: Basic Computing (Python)

Teaching Assistant, Faculty of Liberal Education

Seoul National University, Seoul, Korea

Spring 2021, Spring 2022

- Led weekly lab sessions for 50+ students each semester.