HOIN JUNG

Purdue University, West Lafayette, IN, USA
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EDUCATION

Purdue University — **West Lafayette, IN, USA**
Ph.D. in Electrical and Computer Engineering — Jan. 2023 – Expected May 2027
· Dissertation: Efficient Surgical Interventions for Trustworthy Multimodal Systems

Seoul National University — **Seoul, Korea**
M.S. in Computational Science and Technology — Sept. 2020 – Aug. 2022
· Thesis: "Local-Ensemble Graph Collaborative Filtering with Spectral Co-Clustering"

Korea Aerospace University — **Goyang, Korea**
B.E. in Aerospace & Mechanical Engineering — Mar. 2010 – Feb. 2014
· Major of Aircraft System Engineering

RESEARCH INTERESTS

Trustworthy & Efficient Multimodal Systems

Research Context

. Primary Domain: Trustworthy AI, Multimodal Systems, Retrieval-Augmented Generation (RAG)
. Key Problems: Factual Grounding, Fairness & Debiasing, Hallucination, Bias & Recorruption

Research Methodology

. Core Philosophy: Efficient Post-Hoc Methods without Costly Retraining
. Key Techniques: Internal Feature & Logit Adjustment, Context-aware Pooling, Fair-Factual Reranking

WORK EXPERIENCE

Heterogeneous Integration Design Institute — **West Lafayette, IN, USA**
Research Assistant, Elmore ECE Emerging Frontiers Center — Jan. 2023 – Present
· Designed an automatic generative designer for multi-band planar antenna
· Engineered an explainable model for the ML-based EM simulation via SHAP values

Samsung Research America — **Irvine, CA, USA**
Research Scientist Intern — May. 2025 – Aug. 2025
· 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

Samsung Electronics — **Suwon, Korea**
Engineer, R&D Team, Department of Digital Appliance — Aug. 2017 – Aug. 2020
· Developed the thermo-fluid performance of freezing system for brand-new refrigerator
· Analyzed and optimized refrigeration cycle control system to reduce the power usage

ROK Air Force — **Chungju, Korea**
Lieutenant, Aircraft Maintenance Officer, The 19th Fighter Wings — Jun. 2014 – May. 2017
· Managed aircraft line maintenance and administered ground safety department for the military base

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 — Fall 2021 – Spring 2022
Hyundai Motor Chung Mong-Koo Foundation

National S&T (Science & Technology) Scholarship — Fall 2010
Korea Student Aid Foundation

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 — Purdue University, West Lafayette, IN
Teaching Assistant, Electrical & Computer Engineering — 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) — Seoul National University, Seoul, Korea
Instructor, Language Education Institute — Mar. 2021 – Jul. 2022

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

L0444: Basic Computing (Python) — Seoul National University, Seoul, Korea
Teaching Assistant, Faculty of Liberal Education — Spring 2021, Spring 2022

· Led weekly lab sessions for 50+ students each semester