Hyungjun Doh

Master's Thesis Track

Profile

Deep Learning researcher specializing in **3D/4D Reconstruction**, with a focus on **Human-Object Interaction** and **4D Scene Editing**. Experienced in Human-Computer Interaction research within virtual and augmented reality. Expertise includes integrating **Gaussian Splatting**, Diffusion Models, and Neural Fields to improve the fidelity of 3D object reconstruction, driving innovation in Robotics, XR, and Digital Twins.

Contact details

Email: hdoh@purdue.edu
Linkedin Google Scholar
Homepage Github

Academic Activities

Reviewer

- Conferences: CHI (2025)

Teaching

- **Graduate** Teaching Assistant
  - *ECET 34900 (Fall 2025)* Advanced Digital Systems
  - *ECET 33900 (Fall 2025)* Digital Signal Processing
  - *MA 16200 (Spring 2025)* Calculus II
  - *MA 16500 (Fall 2024)* Calculus I
- **Undergraduate** Teaching Assistant
  - *ECE 57000 (Fall 2023)* Artificial Intelligence

Leadership

- Student Organization **President** KSEA YG Purdue (2021-2022, Purdue)

Award & Honors

- **Scholarship**, Howard J. Heim Memorial Scholarship: ECE Great Work Award (Spring 2023, Purdue University)
- **Fellowship**, Summer Undergraduate Research Fellowship (SURF) (Summer 2023, Purdue University)
- **Dean's List**, Purdue Dean's List, 2018–2023
- **Honors**, Purdue Semester Honors, 2019–2023

Skills

- **Python**, **C/C++**, C#, Java, Verilog
- **Pytorch**, **OpenCV**
- **Linux**, Git, VSCode
- **MATLAB**, Unity, Blender, Houdini,

Education

Purdue University — *West Lafayette, IN*
Master's in Electrical and Computer Engineering — *2024–Present*
- Overall GPA: 3.90 / 4.00
- Advisor: Dr. Karthik Ramani *(Convergence Design Lab)*
- *3D Computer Vision: Human-Object Interaction Reconstruction, 4D Editing, and Extended Reality*

Purdue University — *West Lafayette, IN*
Bachelor of Science in Computer Engineering — *2018–2023*
- Dean's List (Overall GPA: 3.60 / 4.00)
- *Two years of military service (2019–2021)*

Experience

Master's - Purdue University — *West Lafayette, IN*
Research Assistant (Advisor: Dr. Karthik Ramani) — *Aug. 2024 – Present*
- Proposed a training-free text-driven 4D scene editing with 4D Gaussian Splatting, ensuring spatial and temporal consistency in a multi-view video setting. [Submitted to *CVPR 2026*] → **[C4]**
- Presented a template-free occlusion identification method and a temporally consistent amodal completion pipeline for 3D Human-Object Interaction reconstruction. [*ACM MM 2025*] → **[C3]**
- Developed a Unity-based AR interface to enable the authoring of context-aware instructions, and implemented a custom evaluation platform to conduct user validation studies. [*CHI 2025*] → **[C2]**
- Implemented an MR interface for learning assembly tasks with visual representations of causal relationships, effectively enhancing user comprehension. [*TVCG*] → **[J2]**

Yonsei University & Yeungnam University — *Seoul, Korea*
Research Intern (Advisor: Dr.Jeong hoon Byeon) — *Jan. 2024 – July. 2024*
- Implemented an autonomous tracking system by fine-tuning a YOLOv8 model to monitor lizard motion and plant growth dynamics in aerosol-exposed environments.

Undergraduate Research - Purdue University — *West Lafayette, IN*
Research Assistant (Advisor: Dr. Karthik Ramani) — *Jan. 2023 – Dec. 2023*
- Conducted a review of 51 Generative AI papers and defined the Output Modalities dimension in a novel human-GenAI interaction taxonomy. [Preprint] → **[J1]**
- Developed a gesture-controlled AR presentation interface to evaluate the impact of AI-generated multi-modal content on storytelling and user perception. (SURF) → **[C1]**

Vertically Integrated Projects - Purdue University — *West Lafayette, IN*
Team Leader (Advisor: Dr. Mohammad Jahanshahi) — *Aug. 2022 - May. 2023*
- Implemented a semantic segmentation network to detect defects on construction sites.
- Generated 56 cracks and scratches datasets, each comprising 308 images, using the Houdini.

Republic of Korea Army — *Daegu, Korea*
Training Instructor - Squad leader — *Aug. 2019 - March. 2021*
- Served in a Recruit Training Battalion, responsible for training recruits, organizing drill plans and ensuring adherence to safety protocols and guidelines.
- Led a team of 18 experienced drill instructors and trained approximately 2100+ army recruits.

Publication

- **[C4] H. Doh** et al., Dynamic-eDiTor: Training-Free Text-Driven 4D Scene Editing with Multimodal Diffusion Transformer, ***CVPR 2026***. **[Under Review] [Link]**
- **[C3] H. Doh** et al., Occulsion-Aware Temporally Consistent Amodal Completion for 3D Human-Object Interaction Reconstruction, ***ACM MM 2025***. **[Published] [Link]**
- **[C2]** J. Shi*, R. Jain*, S. Chi*, **H. Doh** et al., CARING-AI: Towards Authoring Context-aware Augmented Reality INstruction through Generative Artificial Intelligence, ***CHI 2025***. **[Published] [Link]**
- **[C1] H. Doh** et al., An Exploratory Study on Multi-modal Generative AI in AR Storytelling, ***arXiv***. [preprint]
- **[J2]** R. Jain*, J. Shi*, A. Benton, M. Rasheed, **H. Doh** et al., Visualizing Causality in Mixed Reality for Manual Task Learning: Exploratory Study, ***TVCG***. **[Published] [Link]**
- **[J1]** J. Shi*, R. Jain*, **H. Doh** et al., An HCI-Centric Survey and Taxonomy of Human-GenAI Interactions, ***arXiv***. [preprint] **[Link]**