Xingpeng Sun

Email: sun1223@purdue.edu | | Phone: (608)-772-2792 | | Website: xingpengsun0.github.io

EDUCATION

Purdue University **08/2023-05/2028**

Doctor of Philosophy in Computer Science West Lafayette, IN

- Research Interest: Embodied AI, Robotics, Graphics, LLM/VLM, Generative AI
- Advisor: Dr. Aniket Bera

University of Wisconsin-Madison **09/2019-12/2022**

Bachelor of Science Majors: Computer Science (Distinction in Major), Mathematics Madison, WI

- GPA: 3.97/4.00; Graduated with Distinctive Scholastic Achievement, Dean's List (6 semesters)

PUBLICATION

- TrustNavGPT: Trust-Driven Audio-Guided Robot Navigation under Uncertainty with Large Language Models ***IROS 2024 (Oral)***
  Xingpeng Sun*, Yiran Zhang, Xindi Tang, Amrit Singh Bedi, Aniket Bera*
- DL3DV-10K: A Large-Scale Scene Dataset for Deep Learning-based 3D Vision ***CVPR 2024***

PREPRINT UNDER REVIEW

- LLM-guided UAV Trajectory Generation
  Xingpeng Sun*, Zherong Pan, Xifeng Gao, Kui Wu, Aniket Bera*
- Beyond Text: Improving LLM's Decision Making for Robot Navigation via Vocal Cues
  Xingpeng Sun*, Haoming Meng, Souradip Chakraborty, Amrit Singh Bedi, Aniket Bera*
- Efficient EQA: An Efficient Approach for Open Vocabulary Embodied Question Answering

RESEARCH EXPERIENCE

Lightspeed Studios, Tencent America **06/2024 - 08/2024**

Research Intern Mentor: Dr. Zherong Pan, Dr. Xifeng Gao, Dr. Kui Wu Bellevue, WA

- Developed a novel zero-shot UAV trajectory generation method guided by text-based large language models (LLMs), enabling drones to follow human navigation commands and execute time-optimal, smooth flights in complex large 3D environments; work submitted to ICRA 2025.
- Designed the first text-guided mesh biharmonic deformation algorithms that preserves injectivity for deformable editing of 3D assets by leveraging image language foundation models.

IDEAS Lab, Purdue University Department of Computer Science **08/2023 - Present**

PhD Research Assistant Mentor: Prof. Aniket Bera, Prof. Amrit Singh Bedi West Lafayette, IN

- Designed an LLM-based audio-guided navigation agent that uses affective cues in spoken language to assess the trustworthiness of human commands. Published at IROS2024 as oral presentation.
- Proposed a novel framework for open-vocabulary embodied question-answering using VLM and retrieval-augmented generation, which outperform existing state-of-the-art methods by 15% in accuracy and 20% in efficiency; work submitted to ICRA 2025.
- Collected a 10k real-world scene dataset to forge a path toward a foundation model for learning 3D representation. Published at CVPR 2024.

TECHNICAL SKILLS

Programming Language: Python, Java, JavaScript, C, C++, MATLAB, SQL, HTML, Julia, R

Frameworks/Tools: TensorFlow, PyTorch, OpenCV, React, Git, Blender, Figma, MySQL, AWS

HONORS and AWARDS

Conference Reviewer: IROS, ICRA, SIGGRAPH ASIA, PACIFIC GRAPHIC 2024