

# Weitao (Shepard) Xia

629-999-0307 | [shepardxia1@gmail.com](mailto:shepardxia1@gmail.com) | [linkedin.com/in/weitao-xia](https://linkedin.com/in/weitao-xia) | [github.com/shepardxia](https://github.com/shepardxia)

## Education

<b>Johns Hopkins University</b> MSE in Computer Science	Aug 2023 – Dec 2024 GPA: 3.96/4.00
<b>Vanderbilt University</b> B.S. in Computer Science & Mathematics (Honors Track) Minor in History of Art	Aug 2019 – Dec 2022 GPA: 3.64/4.00 Dean's List for 5 semesters

## Publications

- Shepard Xia**, Brian Lu, Jason Eisner (2024). *Let's Think Var-by-Var: Large Language Models Enable Ad Hoc Probabilistic Reasoning*, **Preprint**, ([arXiv](#))
- Derek Gloudemans, Xinxuan Lu, **Shepard Xia**, Daniel B. Work (2023). *Polygon Intersection-over-Union Loss for Viewpoint-Agnostic Monocular 3D Vehicle Detection*, **Preprint**, ([arXiv](#))

## Research Experience

<b>Argo Lab, Johns Hopkins University</b> Research Assistant with Jason Eisner	Jan 2024 – Present
<b>Human Language Technology Center of Excellence, Johns Hopkins University</b> Research Assistant with Benjamin Van Durme	Aug 2023 – Feb 2024
<b>Institute for Software Integrated Systems, Vanderbilt University</b> Undergraduate Research Assistant with Daniel Work	Jan 2022 – Dec 2022

## Professional Experience

<b>United Imaging Intelligence</b> Research Engineer Intern	Feb 2023 – July 2023
<b>Institute for Software Integrated Systems</b> Research Scientist Intern	May 2022 – Aug 2022

## Teaching

<b>EN.601.661 Computer Vision, Johns Hopkins University</b> Graduate Course Assistant with Kapil Katyal	Jan 2024 – Dec 2024
<b>MATH 2600 Linear Algebra, Vanderbilt University</b> Undergraduate Tutor	Jan 2022 – Jun 2022
<b>AP Statistics &amp; Calculus AB, Heritage Student Foundation</b> Tutor	Feb 2021 – Oct 2022

## Presentations

<b>Ad Hoc Commonsense Reasoning with Large Language Models</b>   MASC-SLL, Poster	May 2024
<b>IWPOD-lite: A Lightweight Solution for License Plate Detection</b>   Vanderbilt ISIS	Jun 2022
<b>Crop-CenterTrack: Validation of Crop-based Tracking</b>   I-24 MOTION	May 2022

## Services

---

### **Cognitive AI Reading Group, Johns Hopkins University**

*Founder & Organizer with Tianmin Shu*

Jul 2020 – Dec 2020

### **VUcept, Vanderbilt University**

*Orientation Leader*

Jul 2020 – Dec 2020

## Other Projects

---

### **Mamba Atari Agents** | EN.601.673 Cognitive Artificial Intelligence

Developed RL agents for Atari games using structured state-space models (SSMs) as world models. Conducted extensive literature review for existing RL methods for Atari agents.

### **Classical Music Generator** | EN.601.682 Machine Learning: Deep Learning (Best Project Award)

Developed and compared LSTM, Transformer, and GAN models for classical music generation, conducted evaluation with 70 users.

### **Surgery Tool Tracker** | EN.601.661 Computer Vision

Implemented an automated tracker for cataract surgery tools using segmentation models.

### **Simulation Game: Seesaw of War and Peace** | CS 4269 Project in Artificial Intelligence (Capstone Project)

Designed a simulation game with AI opponents using A\*.

## Technical Skills

---

**Areas:** Natural Language Processing, Computer Vision, Reinforcement Learning, Machine Learning

**Languages:** Python, C++, C, Java,  $\text{\LaTeX}$ , JavaScript, HTML/CSS, Prolog

**Developer Tools:** PyTorch, TensorFlow, DSPy, LangChain, Huggingface Transformers, Scikit-learn, Pandas, NumPy, OpenCV, TensorRT, Anaconda, JSON, Docker