# Hongyi Sam Dong

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## Education

**Carnegie Mellon University (CMU)** GPA: /

*Master of Science (M.S.) in Robotic Systems Development (MRSD)* ***Sep 2025 – Present***

**University of Illinois Urbana-Champaign (UIUC)** GPA: 3.95/4.00

*Bachelor of Engineering in Computer Science* ***Sep 2021 – May 2025***

Scholarship: Dean's List Spring 2023, Dean's List Fall 2024 (top 20% of The Grainger College of Engineering)

## Technical Skills

**Programming Languages**: Python (Numpy, Pandas), Java, C, C++, Verilog HDL, JavaScript , HTML, CSS, OCaml
**Enterprise Software**: PyTorch, Robot Operating System (ROS), SQL (MySQL, SQLite3), MongoDB, React, LaTeX
**3D Modeling**: Autodesk CAD, SolidWorks, Wireless InSite

## Work Experience

**Siemens Smart Infrastructure** | *Summer Intern* **May 2024 – Aug 2024**

- Contributed to 2025 market release building automation product as member of BA Framework team.
- Fully automated SDU update process and dramatically reduced time consumption by covering all manual steps in Python script that can be triggered by CI/CD pipeline job.
- Enhanced alarm notification nightly test for company's market release product by optimizing dataflow and eliminating timeout errors, significantly reducing incidence of false positives.

**UIUC CS Department** | *Coding Assistant (CS 124, CS 357)* **Sep 2024 – Present**

- Conducted weekly office hours, coordinated interactive group activities for over 1,000 students in Numerical Methods I.
- Integrated concepts from optimization mathematics, including linear programming and nonlinear optimization.
- Facilitated transition from outdated Q&A system to modernized platform, integrating ticketing and thread-based workflows for improved efficiency.

## Selected Projects

**Multi-Layer Neural Network for Image Memorization** **Sep 2024 – Jan 2025**

- Implemented a multi-layer neural network for image reconstruction by mapping 2D pixel coordinates to RGB values.
- Developed and trained the network from scratch using Backpropagation, Stochastic Gradient Descent (SGD), and Adam optimizer, optimizing mean squared error (MSE) loss for accurate image reconstruction.
- Applied advanced training strategies, including mini-batch training, learning rate decay, and standardization, to improve generalization and minimize test error.

**Self-Supervised Learning by Rotation Prediction** **Jan 2025 – Present**

- Developed a self-supervised learning framework using Convolutional Neural Networks (ConvNets) to predict the rotation applied to input images, outputting rotation labels via a classifier trained with Cross-Entropy Loss.
- Implemented advanced training techniques including Stochastic Gradient Descent (SGD) optimization and Batch Normalization to efficiently train ConvNets, significantly improving semantic feature extraction without manual labeling.

**Classroom Availability System** | *Front-End Developer* **Sep 2023 – Dec 2023**

- Implemented robust search bar and filter system for efficient class selection.
- Developed secure login page with HTTP requests for backend user authentication.
- Ensured website responsiveness across desktop, mobile, and tablet screens.

## Research Highlights

**Parasol Lab** | *Research Assistant* **May 2023 – May 2024**

- Integrate Visibility-based PRM motion planning algorithm into Parasol Lab Library framework under supervision of Dr. Nancy Amato, Director of the Siebel School of Computing and Data Science UIllinois.
- Tested availability of simulating UR5e robot arm in Gazebo and Moveit!
- Updated Gazebo package infrastructure in Parasol Lab Library from ROS1 to ROS2.

**iSENS Lab** | *Research Assistant* **May 2023 – Sep 2023**

- Produced propagation path p2m data, which is used to train data learning model, with Wireless InSite, a suite of RF propagation models and co-authored paper on results (yet to be submitted).
- Collaborated with NCSA on visualizing wireless signal propagations.
- Post-processed results from Wireless InSite simulations that contains MMIO transmitters and receivers and generate frequency spectrum over frequency bands that resemble reality.