

# Hanzhang (Henry) YIN

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## EDUCATION

**Brown University** | Providence, RI **Sep. 2025 – Jun. 2027**

- **Degree:** Sc.M. in Computer Science
- **GPA:** – | **School:** Thomas J. Watson Sr. School of Computer Science
- **Courses:** Introduction to Computer Graphics; Learning & Sequential Decision Making, etc.

**University of Rochester** | Rochester, NY **Aug. 2021 – Jun. 2025**

- **Dual Degree:** B.S. in Computer Science & B.S. in Applied Mathematics
- **GPA:** 3.88/4.0 | Hajim School of Engineering
- **Honors & Awards:** Magna Cum Laude; Dean's List

## INTERNSHIP

**KeeperAI** | *Software Development Engineer Intern* **Jun. 2023 – Aug. 2023**

- Developed and enhanced front-end webpage designs using JavaScript and Fluent UI, integrating external NLP AI chatbot plugins to facilitate event scheduling within the Microsoft Teams app.
- Resolved security vulnerabilities in the user login verification module by redesigning regular expressions, improving the efficiency of account verification between the website and database APIs.

## RESEARCH EXPERIENCE

**Motion Prediction of 3D Mesh Movement (Early Stage)** | Advisor: *Prof. Daniel Ritchie* **Sep. 2025 – Present**

- Exploring a pipeline combining language models for semantic understanding, generative video models for motion references, methods to link references to 3D object behaviors, and a lightweight language interface to formalize the process.

**Image Compression and Generation Research** | Advisor: *Prof. Yan Wang* **Jul. 2024 – Oct. 2024**

- Investigated combining DCVC with Diffusion Posterior Sampling (DPS) for video codecs.
- Evaluated performance on ImageNet-1k using FID and PSNR; explored a codec structure with enhanced denoising and generative capabilities for images/videos.

**PD and Hospice ML Research** | Advisor: *Prof. Jiebo Luo* **Feb. 2024 – Present**

- Built models (Bi-LSTM; Logistic Regression; LightGBM; Random Forest; Naïve Bayes, etc.) to predict mortality risk across Admission, LongStay, and Panel time-series datasets in collaboration with URMCC.
- Compared accuracy, sensitivity, recall, specificity, F1-score, and AUC against a Medicare Hospice baseline, analyzing feature selection differences to surface medical insights.

## PROJECTS

**Mini-CLEVR VQA Experiments** **Apr. 2025**

- Built a lightweight VQA benchmark on the synthetic Mini-CLEVR dataset; released a data generator and a clean JSONL schema with reproducible training scripts.
- Implemented two compact baselines: ResNet-18 + SBERT and CLIP ViT-B/32 + LoRA (r=8); designed a simple fusion head ( $\text{concat} \oplus \text{mix} \oplus \|\text{diff}\|$ ) for fast ablations.
- Ran ablation studies on feature unfreezing (e.g., layer4), LoRA rank, and fusion strategies; documented results with checkpoints and dataset links.

**Robust QR Code Scanner & Decoder** **Apr. 2024**

- Implemented image preprocessing (e.g., Sauvola binarization) to enhance QR code detection; used size ratio and connected-component analysis to identify finder patterns.
- Established code bounding boxes by forming a right-angle triangle base from the three corner squares to determine location and orientation.
- Decoded QR contents (URLs, text, contacts) and achieved  $\tilde{20}$  FPS real-time display; applied a Kalman filter to mitigate jitter for stable tracking.

**Autonomy Robotics — UofR Robotics Club** **Aug. 2021 – Jan. 2022**

- Participated in the NASA Lunabotics Competition with the UofR Robotics Club.
- Implemented navigation algorithms for autonomous robots in ROS/C++; adapted Dijkstra to A\* for better pathfinding and simulation efficiency.
- Improved sensor detection by implementing the Canny edge filter in OpenCV, enhancing real-world path feature detection.

## **SKILLS / OTHER**

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- **Languages:** C/C++, Java, Python, C#, JavaScript, HTML/CSS, SQL, Rust, OCaml, etc.
- **Technical:** Data Structures, OOP, Databases, Web Development, Machine Vision, Machine Learning, Deep Learning (CNN/RNN/Transformers, etc.)