

Tyler Chan

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Education

Rensselaer Polytechnic Institute

PhD, Computer Science

Jan 2025 - Present

Rensselaer Polytechnic Institute

Master's, Computer Science

Jan 2024 - Dec 2024

GPA: 3.90

- Conducting research under the guidance of Professor Lei Yu, focusing on security and privacy in ML and AI.

Rensselaer Polytechnic Institute

Bachelor's, Computer and Systems Engineering; Computer Science

Aug 2020 - Dec 2023

GPA: 3.76

- Magna Cum Laude
- Dean's Honor List: All Semesters

Experience

Rensselaer Polytechnic Institute

Research Assistant

Troy, NY, USA

Jun 2024 - Aug 2024

- Contributing to the development of an innovative machine unlearning framework designed to enable precise and complete removal of learned information from machine learning models (currently under confidentiality).

Western Digital

Engineering Co-Op

Rochester, MN, USA

Jan 2023 - Aug 2023

- Developed customized Clang-tidy and Clang-format tools to enforce company-specific coding standards.
- Designed and implemented data collection tools and parsers for preprocessing data used in machine learning models.
- Utilized HiveSQL and AWS S3 to efficiently query and manage large-scale datasets.
- Applied both supervised and unsupervised learning algorithms to uncover complex trends within the collected data.

Projects

[Utilizing IK for Generative Motion](#)

Mar 2024 - Apr 2024

- Adapted and extended an existing generative motion project based on the seminal work from the paper "Motion Interbetweening via Two-stage Transformers" by Qin et al., introducing inverse kinematics (IK) controllers to improve the model's efficiency in character animation.
- Reduced the number of trainable parameters by optimizing the output size due to IK integration, which streamlined the motion generation process, reducing computational costs while maintaining high-quality animation results.
- Demonstrated the effectiveness of these improvements through example previews, showcasing the benefits of IK-enhanced generative motion on YouTube [Preview: youtu.be/ZrFl5hJJQ5o].
- Technologies: Python, PyTorch, Blender.

[Text2Movie](#)

Oct 2023 - Dec 2023

- Engineered an AI-driven pipeline that transforms simple text descriptions into fully generated multi-scene movies, including AI-generated visuals, voice acting, and video sequences, automating the entire creative process.
- Developed an end-to-end solution utilizing cutting-edge models such as SDXL/Stable Diffusion and SVD-XT for video generation, GPT-4 for story and script writing, and advanced speech synthesis models like VITS, TorToiSe-TTS, and So-VITS-SVC for creating dynamic, high-quality voiceovers.
- Technologies: Python, PyTorch, Diffusers.

Skills

- **Programming Languages:** Python, C/C++, Java, Lua
- **Libraries/Frameworks:** PyTorch, Scikit-Learn, Matplotlib, NumPy, Pandas, OpenCV
- **Domains/Expertise:** LLMs, Deep Learning, NLP, Computer Vision, Machine Learning, AI
- **Tools/Technologies:** Git, LaTeX, CAD, Bash
- **System Knowledge:** x86_64, Linux/Unix, Windows