

SHU CHEN

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EDUCATION

University Of Utah

B.S. in Computer Science

Overall GPA: 3.87 / 4.0

Honors

Dean's List Award

August 2023 - August 2026

Fall 2023, Spring & Fall 2024, Spring 2025

EXPERIENCE

Research Assistant Supervised by Professor Jenny Lin & Cem Yuksel

Yarn level fabric reconstruction

June 2025 – August 2025

- Enhanced existing software modules to support additional functionalities, improving pipeline efficiency.
- Generated synthetic datasets for Machine Learning using Houdini and custom scripts.
- Trained and fine-tuned learning models to detect fabric stitches, achieving **97% precision and recall**.
- Validated results through cross-validation and real-world test cases, ensuring model robustness.

Research Assistant Supervised by Professor Cem Yuksel

High Fidelity Cloth Capture

March 2025 – June 2025

- Contributed as third author to a SIGGRAPH submission on computer graphics and machine learning.
- Optimized data-processing pipeline with parallelization, reducing runtime by **90%**.
- Designed and assembled a custom motion-capture suit; integrated hardware with data acquisition software.
- Captured and pre-processed motion data for evaluation, ensuring reproducibility of experimental results.

PROJECTS

AI-Native Hierarchical Knowledge Platform

December 2025 - Now

- Led a 4-developer team to architect a distributed knowledge system; designed the Async Django backend using ADRF to handle concurrent AI requests.
- Engineered a "Hierarchical Summarization" protocol to replace vector search, enabling structure-aware note retrieval with **96%** reduced token usage.
- Implemented dual-interface authentication integrating JWT and OAuth2; orchestrated multi-provider LLM calls via LiteLLM for unified model access.

Personal Website

May 2025

- Built a personal website using React and Three.js, featuring interactive shaders and responsive layouts.
- Integrated GitHub Actions, automating build and deployment to GitHub Pages.

C++ Real-Time Rasterization Engine

February 2025

- Architected a 3D rendering engine from scratch using C++ and Modern OpenGL, bypassing high-level libraries to master the graphics pipeline.
- Implemented Blinn-Phong lighting model and Shadow Mapping through custom GLSL shaders and multi-pass rendering techniques.

TECHNICAL STRENGTHS

Computer Languages

Python, C++/C/C#, JAVA, Rust, Racket

Software

Unity/Unreal, Houdini, Adobe Series

Tools

Docker, Render Doc, Git, Linux, L^AT_EX