

Shuyuan ZHANG

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A **self-motivated** PhD student focused on **agentic 3D** modelling, perception, generation and editing. Research interests also include computer graphics or vision, large language models, and embodied intelligence.

EDUCATION

The University of Edinburgh

PhD with Integrated Study (CDT-D2AIR)

2026–present
Edinburgh, UK

Imperial College London

MSc in Advanced Computing, Distinction

2024–2025
London, UK

The University of Edinburgh

BSc Computer Science, First-class Honours

2020–2024
Edinburgh, UK

PUBLICATIONS

ShapeCraft: LLM Agents for Structured, Textured and Interactive 3D Modeling

Shuyuan Zhang, Chenhan Jiang, Zuou Li, and Jiankang Deng

NeurIPS 2025

3D Modelling · LLM Agents

A training-free multi-agent system for 3D modelling, centred around a Graph-based Procedural Shape representation which decouples global positioning information and local geometry modelling tasks, revealing the further potential of LLMs' out-of-the-box capabilities in understanding and interacting with 3D data.

ACADEMIC EXPERIENCE

Towards Unified, Structured and LLM-native 3D Scene Synthesis

MSc Dissertation

3D Scene Synthesis · LLM Agents

A unified framework for 3D scene generation that employs CSP-based layout optimization and integrates text-to-3D generation alongside LLM-native methods, enables more granular control and better scalability in coherent 3D scene synthesis through structured representation and reasoning.

Inverse Procedural Modeling: From Sketches to Buildings

BSc Dissertation

Procedural Modelling · Neural Networks

An inverse procedural modelling method built around a DAG-based shape grammar and an encoder-decoder architecture, complemented by a Bezier-curve based mesh perturbation algorithm for synthetic data creation and a custom Blender add-on for inference and visualization.

TECHNICAL EXPERIENCE

Software Infrastructure for Driverless Vehicle

Edinburgh University Formula Students

2023–2024

Maintained and enhanced Python-based command-line interface tools, contributed to server backend, updated launch configurations for the driverless race car.

Tutor

The University of Edinburgh

2022–2023

Delivered weekly tutorials for the second-year course *Reasoning and Agents*, covering topics from search and logic, automated planning to Bayesian Networks and Markov Decision Processes.

Other Summer Internships

2021–2024

Digital Human, *LLM Agents* and *Computer Vision* with Python, Docker and PyTorch.