

My research involves designing algorithms and tools that push the boundaries of machine learning innovation for filmmaking applications. This focuses on differentiable and continuous 3-D representations with specializations in dynamic and re-lightable 3-D objects and scenes. Moving forward, my ambition is to support the creative industry with my technical skills in computer vision. Hopefully this aligns with your ambitions, so that together we can raise the bar of creative capabilities for future generations.

<b>Languages</b>	English, French	<b>Systems</b>	Linux, SLURM, Git	<b>Specializations</b>	3-D Reconstruction
<b>Software</b>	Blender, Unity	<b>Programs</b>	Python, C, C#, C++, Matlab		Gaussian Splatting (GS)
	FFmpeg, COLMAP	<b>Libraries</b>	PyTorch, Optix, Cupy		Virtual Production (VP)

## RESEARCH

Aug. 2025 - Jan. 2026 LuxAeterna & MyWorld	<b>VSR: Virtual studio 3D reconstruction and relighting with real in-camera image-based relighting</b> (on-going)    <a href="https://interims-git.github.io/">https://interims-git.github.io/</a> This paper looks at reconstructing and relighting 3D-GS content captured using a VP stage. With this users can modify the LED image-based stage lighting and background imagery without requiring in-person reshoots. I implemented tools for rendering AOVs, relighting the 3D scene and editing the geometry of the LED wall.
Jan. 2025 - Aug. 2025 MyWorld	<b>Splatography: Sparse multi-view dynamic Gaussian Splatting for filmmaking challenges</b> <i>International Conference on 3-D Vision 2026</i>    <a href="https://bit.ly/49tc066">https://bit.ly/49tc066</a> We investigate dynamic 3D-GS reconstruction with sparse multi-view cameras, for filmmaking. This uses SAM2 to segment foregrounds and backgrounds, and separately models dynamic GS for reach. I implemented GS-based VFX (bloom, pulse, etc.) to showcase our segmentation and reconstruction results.
June 2024 - June 2025 Condense Reality & MyWorld	<b>ViVo: A dataset for human volumetric video reconstruction and compression</b> <i>Special Issue on Volumetric Video and Compression, T-CSVT IEEE</i>    <a href="https://bit.ly/492T8vE">https://bit.ly/492T8vE</a> We produced aGa multi-view video dataset for volumetric video entertainment. I was responsible for pre-production planning, participant recruitment, directing, post-production, and data processing. I developed a GUI for handling multi-view RGB and point clouds, and a GUI for producing multi-view masks with SAM2.
Sep. 2022 - Dec. 2024 MyWorld	<b>Intelligent Cinematography: A review of AI research for cinematographic production</b> <i>Artificial Intelligence Review, Springer Nature</i> This is the first literature review of AI research for filmmaking applications. We discuss current and future AI research for general, virtual, live and aerial productions. Topics include NeRF, GS, Diffusion, LLMs, zero-shot models and more. This is written for technical and non-technical readers.

## WORK EXPERIENCE

Jun., 2019 - Present	<b>Engineering Consultant @ AB5Consulting</b> I consult on embedded system design, wireless network architectures and computer vision applications for agri-tech. I also review policy and budget documents.
July 2020 - Nov. 2020	<b>Research Internship @ Lurtis Rules</b> I researched multi-objective reward functions for genetic algorithms. This optimizes wireless sensor placement for irregularly shaped agricultural fields in 2-D.

## EDUCATION

Sep., 2022 - Mar. 2026	<b>Intelligent Cinematography, PhD @ University of Bristol, UK</b> Funded by MyWorld and UKRI    Supervised by David Bull and Pui Anantrasirichai (see research above)
Sep., 2018 - Mar. 2022	<b>Electronic Engineering with AI, MEng (First Class) @ University of Southampton, UK</b> Thesis supervised by Mark Weal and given the title of “award worthy” <b>Relevant Modules</b> (all graded First Class) Advanced Programming (C++), Robotic Systems, Image Processing (MatLab), Numerical Methods, Mathematical Optimization, Reinforcement & Online Learning, Engineering Management & Law

## PERSONAL PROJECTS

Sep., 2025 - Present	<b>Designing Sewing Patterns with Dynamic Gaussian Avatars from Fixed Monocular Camera</b> I developed a GS pipeline that reconstructs a 3D human avatar from a single fixed camera and estimates body measurements, which is difficult to do without a tailor. I implemented a GUI that replicates Blender's grease pencil and extracts 2-D patterns so that users can design body-fit pattern blocks for clothes design.
Jan. 2025 - June 2025	<b>Reverse Engineering ".procreate" files with Neural Networks (for Animations)</b> After receiving permission, I hacked the procreate (bz4 encoding) file format using a simple CNN and created an animation workflow tool for Procreate files that extracts layers and layer-rules for animation projects. This organises the extracted images and converts layer effects to ClipStudioPaint format. It allows me to plan animations in procreate with layers and move it to CSP when I am ready for more serious work

## VOLUNTEERING & AWARDS

Years 2020/2	Student Faculty President @ University of Southampton
Years 2020/1	Head of the ECS Mentoring Scheme @ University of Southampton
Year 2021	Biggest Impact @ University of Southampton, ECS Student Society
Year 2022	Biggest Impact @ University of Southampton, ECS Student Society