

Alexandre Symeonidis-Herzig

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Summary

PhD researcher in computer vision, specializing in sign language production, photorealistic avatar synthesis, and human motion generation. Experienced in developing end-to-end deep learning systems, from multi-view data capture and preprocessing to model training and evaluation. Focused on generative modeling and building people-centered AI for communication and expression.

Education

University of Surrey

Guildford, GB

PhD in Computer Vision

Sept 2023 – 2027 (expected)

- Thesis: Translation and Production of Non-Manual Features for Sign Language
- Supervised by Prof. Richard Bowden and Dr. Özge Mercanoğlu Sincan
- Reviewer for IEEE FG and BMVC
- ECCV 2026 Doctoral Consortium

University of Surrey

Guildford, GB

BEng (Hons) in Electronic Engineering

Sept 2019 – June 2023

- Graduated with First Class Honours
- Computer Vision
- Computer Graphics
- C++ and Object-Oriented Design
- Computer Algorithms and Architecture

Publications

M3T: Discrete Multi-Modal Motion Tokens for Sign Language Production

Aug 2026

Alexandre Symeonidis-Herzig, Jianhe Low, Ozge Mercanoglu Sincan, Richard Bowden
arxiv.org/abs/2603.23617 ([Accepted BMVC] arXiv preprint)

State-of-the-art 3D sign language production with explicit non-manual features: an autoregressive transformer over discrete FSQ-VAE motion tokens on an SMPL-X + FLAME morphable body model, evaluated on How2Sign, CSL-Daily, Phoenix14T, and NMFs-CSL.

SignSparK: Efficient Multilingual Sign Language Production via Sparse Keyframe Learning

June 2026

Jianhe Low, Alexandre Symeonidis-Herzig, Maksym Ivashechkin, Ozge Mercanoglu Sincan, Richard Bowden
arxiv.org/abs/2603.10446 ([Accepted ECCV] arXiv preprint)

Efficient multilingual sign language production from sparse keyframes: conditional flow matching with keyframe-to-pose editing, automatic sign segmentation, and 3D Gaussian Splatting rendering, across British, American, Chinese, and German Sign Language.

VisualSpeaker: Visually-Guided 3D Avatar Lip Synthesis

July 2025

Alexandre Symeonidis-Herzig, Ozge Mercanoglu Sincan, Richard Bowden
[ICCV Workshops](#)

High-fidelity 3D avatar lip synchronization via a perceptual lip-reading loss: visual speech recognition supervising differentiable 3D Gaussian Splatting renders, supporting accurate mouthings for sign language avatars.

Experience

Computer Vision Researcher Intern

Remote, GB

Signapse

Mar 2026 – Sept 2026

Six-month research internship at an AI sign language translation company, working on photorealistic real-time signing avatar rendering and data capture.

- Developed a custom implementation of an open-source 3D Morphable Model with 3D Gaussian Splatting for photorealistic real-time signing rendering, with a focus on human reconstruction
- Designed and built a 3-camera synchronized global-shutter capture rig, shipped abroad to record new sign language datasets, capturing over 30,000 glosses to date

Graduate Teaching Assistant

University of Surrey

Guildford, GB

Sept 2023 – present

Part of the team delivering labs for CS and EEE courses, providing lab instruction and technical mentoring.

- Delivered four lab series to cohorts of 50-200 students, including COM1031 (Computer Logic), EEE1035 (C Programming), and EEE2048 (Algorithms)
- Completed GTA training to enhance teaching, feedback, and teamwork skills

Summer Research Intern

University of Surrey

Guildford, GB

June 2022 – Sept 2022

Research on multi-agent reinforcement learning strategies for UAV access control, with a focus on reproducibility and model efficiency.

- Reimplemented baselines from Matlab to PyTorch for reproducible experimentation and up to 50% faster training
- Designed and trained deep policy networks using DQN
- Evaluated agent coordination strategies in simulated environments

Associate Development Engineer

Sky Group

London, GB

June 2021 – June 2022

Collaborated with an agile engineering team to develop computer vision tools for automated set-top box validation, integrating OCR pipelines into production workflows.

- Built OCR pipelines for detecting on-screen text and anomalies in video streams
- Deployed computer vision tools for regression testing in content validation workflows

Projects

PokerGym: Multi-Agent Poker Environment

May 2025 – Aug 2025

- Custom Texas Hold'em multi-agent reinforcement learning environment (PettingZoo, Gymnasium) with a full PPO training pipeline, reward tracking, and legal action masking

Volumetric Sign Capture System

Sept 2023 – Sept 2024

- Low-cost, scalable 7-camera volumetric capture rig, combining Raspberry Pi cameras with a broadcast-grade Blackmagic studio camera and custom synchronization and control software, for multi-view sign language datasets

Marker-less Motion Capture for Signing Avatar

Sept 2022 – June 2023

- Undergraduate thesis: real-time photorealistic signing avatar driven from monocular video, combining MediaPipe, a custom uplift network, and Unreal Engine Metahumans

Skills

Programming Languages & Frameworks: Python, C++, PyTorch, OpenCV

Tools: Docker, Git, LaTeX, Weights & Biases, Linux, SLURM, Unreal Engine

Specialized: Computer Vision, Sign Language Production, Generative Modeling, Flow Matching, 3D Gaussian Splatting, Neural Rendering, 3D Morphable Models, Reinforcement Learning

Languages: English (Fluent), Greek (Proficient), German (Proficient), Dutch (Proficient)

Volunteer

Societies Chair

University of Surrey Students' Union

Guildford, GB

Sept 2023 – June 2024

Oversaw 150+ student-led societies for the Students' Union.

Committee Member / Founder

University of Surrey Societies

Sept 2019 – June 2025

Founded GameDev Society; committee roles in GameSoc and EARS.

References

Upon Request: Available upon request from supervisors and colleagues