

YANNIS DOUROS

Computer Vision & Machine Learning Engineer | Applied R&D · Algorithms · 3D Geometry | C++ · Python

London, UK | douros.org | [LinkedIn](#) | [GitHub](#)

PROFILE

Software engineer and applied R&D specialist with a long-standing background in computer vision, 3D geometry, image processing, machine learning and numerical computing. Strong modern C++ foundation with Python experience, spanning original algorithm development, performance-focused re-engineering and production-grade troubleshooting. Particularly interested in difficult back-end problems: developing new approaches where solutions are incomplete, or improving existing systems against demanding performance targets.

CORE EXPERTISE

Computer Vision & 3D: 3D reconstruction, geometry, point clouds, image processing, tracking, SfM, NeRF, OpenCV, human-body modelling

ML & Numerical: Machine learning, deep learning, CNNs, PyTorch, TensorFlow, scikit-learn, linear algebra, numerical analysis

Engineering: Modern C++, Python, OpenCL, parallel/GPU computing, CMake, Git, SQL; debugging, profiling and performance optimisation

CURRENT TECHNICAL PROJECTS

[FractalKitchen](#) | Personal project · Current

- GPU-accelerated fractal renderer in C++20 and OpenCL, used to explore parallel computation, numerical precision, interactive rendering and colouring; includes extended-precision double-double arithmetic for deeper zooms.

[2D Gaussian Splatting](#) | Personal project · Current

- Experimental Python/PyTorch implementation exploring Gaussian splatting, differentiable rendering and image reconstruction in a simplified 2D setting; current work focuses on optimisation behaviour and reconstruction quality.

PROFESSIONAL EXPERIENCE

Independent Computer Vision & Machine Learning Engineer | Self-employed · Jan 2021 – Feb 2025

- 4Roads: developed an indoor 3D reconstruction pipeline from monocular phone video, combining COLMAP/SfM camera poses with NeRF-derived geometry where conventional feature matching produced insufficient point-cloud density.
- Derived scene orientation and architectural structure from reconstructed geometry using PCA, point-cloud slicing and convex-hull analysis; rectified individual video frames using recovered camera transformations.
- Other independent work included applied computer-vision/ML prototyping and technical software development for external clients.

Senior Computer Vision R&D Engineer | Cubic Motion · 2018 – 2019

- Re-engineered a real-time facial tracking pipeline to sustain two 60 fps helmet-mounted camera streams on wearable mini-PC hardware, removing the need for a tethered high-performance desktop while preserving tracking density, quality and smoothness.
- Combined profiling and implementation optimisation with algorithmic and architectural changes, improving CPU parallelism and eliminating unnecessary computation and processing overhead.
- Contributed to algorithm development, integration, regression/performance testing and maintenance of core computer-vision libraries in collaboration with product and production teams.

Senior Body Modelling Engineer | Metail · 2016 – 2017

- Maintained and extended a 3D body-modelling pipeline transforming unstructured body-scanner point clouds into fitted meshes and articulated skeletons, with body measurements mapped to model parameters.
- Extended the modelling pipeline to support new body types and populations beyond its original development data, adapting input data and resolving fitting assumptions that did not generalise.
- Diagnosed garment-visualisation failures by tracing problems backwards through mesh and skeleton fitting and resolving underlying modelling issues.

Software / Quant Developer | Royal Bank of Scotland, Global Banking & Markets · 2007 – 2014

- Quant Developer (2007–2012): developed and maintained the equity-derivatives regression-testing system; investigated pricing defects in complex numerical C++ code and resolved implementation and memory-management issues with quantitative analysts.
- Risk & Valuations (2012–2014): developed and supported components of a large-scale risk-calculation platform across C++ and SQL, including deep diagnosis and recovery of production failures.
- Technology Projects (2014): built migration/integration tooling and supported risk-system execution during a major investment-banking business transfer.

Software Engineer | Symbian Software Ltd. · 2004 – 2007

- Developed and debugged C++ telephony/networking components for Symbian OS, with strong emphasis on reliability and resource-efficient software for constrained mobile hardware.
- Implemented a two-phase key-retrieval mechanism for WLAN authentication; undertook a mentoring secondment to the Bangalore development office and contributed technical material to Symbian C++ books.

RESEARCH & EARLY COMMERCIALISATION

Research Fellow | University College London, Department of Computer Science · 1998 – 2004

- Research in 3D human-body modelling and machine vision, overlapping substantially with PhD work and combining original algorithm development with applied industrial research.
- Developed methods for reconstructing and analysing human-body surfaces from noisy, unstructured 3D point clouds, including original work on surface-curvature estimation and ridge-feature detection on complex free-form geometry.
- Applied PCA and regression to large 3D body-scan datasets to model modes of torso-shape variation and relationships with geometric surface features.
- Worked on Wellcome Trust and European clothing-industry consortium projects, contributing to proposals and presenting/demonstrating technical concepts to industrial partners.

Founder & Director | SomaVision Research Services Ltd. · 2001 – 2004

- Established with UCL support to commercialise university-developed software/IP; packaged and supplied a 3D body-shape analysis application to industrial partners and undertook selected external technical advisory work.

EDUCATION

PhD, Computer Science – 3D Human Body Modelling | University College London · 1998 – 2004

MRes, Computer Vision, Image Processing, Graphics & Simulation – Distinction | University College London · 1997 – 1998

BSc, Informatics | National & Kapodistrian University of Athens · 1992 – 1997

SELECTED PROFESSIONAL DEVELOPMENT

- [LLMs Mastery: Complete Guide to Transformers & Generative AI](#) — Udemy, 2025
- [Generative Adversarial Networks \(GANs\) Specialization](#) — DeepLearning.AI, 2024
- [TensorFlow Developer Professional Certificate](#) — DeepLearning.AI, 2022
- [Deep Learning Specialization](#) — DeepLearning.AI, 2021
- Accredited Symbian Developer (ASD) — Symbian Software Ltd., 2006

Full professional development & credentials: douros.org/professional-development/

SELECTED PUBLICATIONS

- “Three-Dimensional Surface Curvature Estimation using Quadric Surface Patches” — Scanning 2002.
- “Reconstruction and Interpretation of 3D Whole Body Surface Images” — Scanning 2000.
- “An Improved Algorithm for Reconstruction of the Surface of the Human Body from 3D Scanner Data Using Local B-spline Patches” — IEEE ICCV99 workshop.
- Contributor, “Objects – Memory Management, Cleanup and Error Handling”, in Symbian OS C++ for Mobile Phones, Vol. 3 — Wiley.

Full publication list: douros.org/publications/

ADDITIONAL INFORMATION

Languages: English · Greek

Right to work: United Kingdom · European Union