

NAMAN MERCHANT, PHD

Game Technologist & HPC Specialist

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Dundee, UK

naman-merchant/



EXPERIENCE

Lecturer in Game Technology and Mathematics

Abertay University

June 2020 – Current

Dundee, UK

- PlayStation 5 Engine Development:** Architected “Skateboard”, a custom C++ game engine for PS5 hardware. Designed core subsystems (memory management, ECS) enabling development for 100+ student developers annually.
- Technical Leadership:** Delivered advanced modules in C++17/20, Graphics Programming, and Data Structures. Mentored teams on performance profiling and console optimization.
- Research Engineering:** Led technical development for CoSTAR and accessible VR toolkits, implementing low-latency haptic feedback integrations using C++ and Unity.

Research Engineer (HPC & Simulation)

Abertay University

2018 – 2023

Dundee, UK

- Massive Scale Optimization:** Engineered a distributed agent-based simulation handling 256M+ active agents in real-time on the ARCHER2 supercomputer.
- HPC Architecture:** Utilized C++, MPI, and OpenMP to achieve near-linear scaling across distributed nodes. Implemented Data-Oriented Design for cache coherency.

Independent Game Programmer

Self-Employed

2016 – 2021

Dundee, UK & Pune, India

- You Are Being Followed (2021):** Lead Developer in Uncommon Chocolate for Abertay’s first PlayStation publication (>500k downloads). Developed the commercial release based on the BAFTA-winning concept.
- Fleur’s Wonderland (2018):** Delivered an AR app for the “Maggie’s Penguin Parade” statue trail using Unity/Vuforia (iOS & Android).
- Hakuna’s Fire (2016):** Student game project, won FICCI Frames BAF Student Game Award in Mumbai.
- InGame Dislectek (2021):** Text-to-speech accessibility tool for games.

GRANTS

Total Funding: >£52.3M (PI: £63k | Co-I: £52.27M).

Includes role as Co-I on CoSTAR National Lab (£52M).

ACHIEVEMENTS

- BAFTA YGD Concept Winner**
Lead Developer of commercial release – You Are Being Followed (2021)
- Nominated for Beyond**
“Emerging innovators in the UK” – Manchester (2025)
- Represented UKRI for AAAS**
Washington DC (2019)
- Interpol & IPCC Serious Game**
UK (2017)
- FICCI Frames BAF Student Game Award**
Hakuna’s Fire – Mumbai (2016)

TECHNICAL SKILLS

- C++ (17/20)
- C#
- STL & Templates
- Multi-threading & Concurrency
- SIMD
- PlayStation 5 Development
- Console Optimization
- Unreal Engine 5 (Source)
- Unity
- HPC & Distributed Systems
- MPI & OpenMP
- Profiling (RenderDoc, PIX)

- Data-Oriented Design
- Graphics Programming
- Git/Perforce
- Agile/Scrum

EDUCATION

Ph.D. in Games and Computing

Abertay University

2018 – 2023

Funded by Northwood Trust. Agent-based HPC simulation of cancer spheroids.

Master of Professional Game Development

Abertay University

2017

Distinction

PUBLICATIONS

Journal Articles

- **N. Merchant**, A. T. Sampson, A. Boiko, and R. E. Falconer, "Dense agent-based hpc simulation of cell physics and signaling with real-time user interactions," *Frontiers in Computer Science*, vol. 5, p. 1085 867, 2023.

Conference Proceedings

- H. Austin, L. Shepherd, **N. Merchant**, and W. Kavanagh, "Inclusive vr experiences for visually impaired people: Making an accessible xr," in *Zip-Scene Conference 2025: Hunting for Attention: Interactive Digital ...*, 2025.
- **N. Merchant**, E. Ince, J. I. Jung, H. Yang, and A. Szymkowiak, "Impact of full-body haptic feedback on the sense of presence, affective experience, and game engagement in a vr game," in *Abstract Proceedings of DiGRA 2025: Games at the Crossroads*, 2025.

Software

- A. Low, **N. Merchant**, S. Anderson, and J. I. Jung, *Dislectek: Text-to-speech for accessibility in games*, 2021.
- **N. Merchant** and M. Lynagh, *You are being followed*, 2021.

Interactive Engineering & Installations

- **N. Merchant**, J. I. Jung, E. Ince, H. Yang, N. B. M. Dass, and A. Szymkowiak, *Chiasmic play: Haptic theatre performance at the water's edge studio*, 2025.
- L. A. Shepherd, **N. Merchant**, H. J. Austin, and W. Kavanagh, *Rhizoma vr-rnib xr toolkit edition*, 2025.
- H. Mehrpouya, **N. Merchant**, J. Ahluwalia, D. Nicoll, S. Usui, and J. Bretin, *Rhizoma*, 2024.
- H. Mehrpouya, **N. Merchant**, S. Osui, D. Nicol, J. Bretin, and J. Ahluwalia, *Rhizoma: Group exhibition, green gallery, dundee botanic gardens, dundee*, 2024.