Richard Southern

Researcher, Lecturer, Programmer, Leader

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Showreels: [Virtual Production] [Simulation]

SUMMARY

Experienced leader in Higher Education. 20+ years of R&D and teaching experience in virtual reality, rendering and simulation. Advisor on training and talent development in the Creative Industries. Extensive links to VFX, Animation and Games industries.

SELECTED PROJECTS

Sustainable Virtual Production 2020–Now

Developing infrastructure to support research and teaching in the sustainability of Virtual Production. To date this project has acquired £500k of external and internal funding. Personal contributions include research leadership, consortium building, consultancy and mentoring. [showreel] [site] [promo]

VFX Fluid Simulation 2013–Now

Developing fluid simulation techniques and related applications to address challenges in the Visual Effects industry. Personal contributions include research, consultancy, supervision and software development. [2, 3, 4] [showreel] [code]

The Bystander Project 2008–2011

A VR experiment to establish the influence of group affiliation on the bystander effect. Personal contributions include research, team leadership and software development. [6, 1]

EMPLOYMENT HISTORY

Lead Developer 2022–now

Foundry.
Leading the performance team on Foundry's lighting and lookdev solution Katana.

Head of Department 2019–2022

NCCA, Bournemouth University
Leading the National Centre of Computer Animation, an internationally leading centre for research and teaching in Computer Animation.

Principal Academic (Senior Lecturer) 2011–2019

NCCA, Bournemouth University
Teaching and research in multiple topics, including Real-time Rendering, Software Development, Parallel Programming, Simulation and Computer Graphics.

Research Fellow 2008–2011

NCCA, Bournemouth University
Leading software development and asset creation in a multi-disciplinary team for a set of VR experiment to investigate the factors influencing the likelihood of a bystander intervening in a violent emergency.

Software Engineer 2001–2003

EM Software and Systems (now Altair)
Designing, implementing, testing and maintaining core CAD, Visualisation and antenna design and placement tools.

EDUCATION

PhD Computer Science 2003–2008

University of Cambridge Animation manifolds for representing topological alteration

MSc Computer Science 1999–2001

University of Cape Town Quality control tools for interactive rendering of 3d triangle meshes

BSc Computer Science 1995–1997

University of the Witwatersrand

PGCert Education Practice 2013

Higher Education Academy

RECENT GRANTS

Towards Zero Carbon Production (£43k) 2022

XR Stories

Towards Zero Carbon Production: A systems dynamics model to inform and monitor energy policy and planning scenarios in Virtual Production (PI).

UK–China Networking Grant (£100k) 2022–2023

Arts and Humanities Research Council

Understanding the Future of UK-China Research and Innovation Collaboration in Cloud based Film Production (Co-I).

BU Strategic Investment (£360k) 2021–2024

Bournemouth University

Towards Remote Production: Multi-Disciplinary Innovation in Virtual Production to widen access, enhance sustainability and enable new applications (PI).

World Class Laboratories Fund (£61k) 2020

UK Research and Innovation

Production facilities upgrade to support Virtual Production (PI).

REFEREES

Available on request.

SELECTED PUBLICATIONS

[1] A. Rovira, R. Southern, D. Swapp, C. Campbell, J. J. Zhang, M. Levine, and M. Slater. Bystander affiliation influences intervention behaviour – a virtual reality study. *SAGE Open*, 2022. https://journals.sagepub.com/doi/10.1177/21582440211040076.

[2] M. Jiang, R. Southern, and J. J. Zhang. Energy-based dissolution simulation using SPH sampling. *Computer Animation and Virtual Worlds*, 29(2):e1798, 2018. https://onlinelibrary.wiley.com/doi/abs/10.1002/cav.1798.

[3] R. Jones and R. Southern. Physically-based droplet interaction. In *Proceedings of the ACM SIGGRAPH / Eurographics Symposium on Computer Animation*, SCA '17, pages 5:1–5:10, New York, NY, USA, 2017. ACM. http://doi.acm.org/10.1145/3099564.3099573.

[4] M. Jiang, Y. Zhou, R. Wang, R. Southern, and J. J. Zhang. Blue noise sampling using an SPH-based method. *ACM Trans. Graph.*, 34(6):211:1–211:11, Oct. 2015. http://doi.acm.org/10.1145/2816795.2818102.

[5] X. Yang, J. Chang, R. Southern, and J. J. Zhang. Automatic cage construction for retargeted muscle fitting. *The Visual Computer*, 29(5):369–380, 2013. http://dx.doi.org/10.1007/s00371-012-0739-3.

[6] M. Slater, A. Rovira, R. Southern, D. Swapp, J. J. Zhang, C. Campbell, and M. Levine. Bystander responses to a violent incident in an immersive virtual environment. *PLoS ONE*, 8(1):e52766, 01 2013. http://dx.doi.org/10.1371%2Fjournal.pone.0052766.

[7] F. Liu, R. Southern, S. Guo, X. Yang, and J. Zhang. Motion adaptation with motor invariant theory. *Cybernetics, IEEE Transactions on*, 43(3):1131–1145, 2013. https://doi.org/10.1109/TSMCB.2012.2224920.

[8] R. Southern and J. Zhang. Motion-sensitive anchor identification of least-squares meshes from examples. *Visualization and Computer Graphics, IEEE Transactions on*, 17(6):850–856, June 2011. https://doi.org/10.1109/TVCG.2010.95.

[9] X. Yang, R. Southern, and J. J. Zhang. Fast simulation of skin sliding. *Computer Animation and Virtual Worlds (Proceedings of CASA 2009)*, 20(2–3):333–342, 2009. http://www3.interscience.wiley.com/journal/122418041/abstract.

[10] R. Southern and J. Gain. Creation and control of real-time continuous level of detail on programmable graphics hardware. *Computer Graphics Forum*, 22(1):35–48, 2003. http://www3.interscience.wiley.com/journal/118878788/abstract.