

Michael Cook

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RESEARCH

I study ways to help both software and humans be more creative: either by building software that can autonomously design interactive software like videogames and own their work creatively; or by building tools and developing practice to help people work with and understand generative software more easily. I have built software to automatically design games, tools to help people understand procedural generation and games to demonstrate new ideas and applications for artificial intelligence. I'm also extremely passionate about outreach and community-building, both within and without academia. My research has led to the first entry to a public game jam by an AI, a top 500 Android game designed by an AI, and producing the first analysis within Computational Creativity research of an artificial game designer.

EDUCATION

PhD - Department of Computing, Imperial College, London, March 2016

Thesis Title: 'Co-operative Coevolution for Computational Creativity: A Case Study In Videogame Design'

MEng - Department of Computing, Imperial College, London, June 2010

Projects: Causal Theories, Satisfiability and Answer Sets; Automated Generation Of Compiler Test Cases

PROFESSIONAL EXPERIENCE

University of Falmouth, July 2015 - Present – Senior Research Fellow

- Leading cutting-edge research into automated game design.
- Developed Danesh, a research-driven developer support tool for working with procedural generation.

Goldsmiths, University of London, July 2013 - June 2015 – Research Associate

- Employed on and co-wrote EPSRC grant EP/L00206X/1, *Creative Code Generation*
- Extended PhD research into automated game design with work investigating code generation.

INVITED TALKS, PANELS AND TUTORIALS

Invited Talks

Automated Game Design As Performance - Zurich Game Lab Conference, 2017

Making Things That Make Things - Part of The Barbican's *Interfaces Monthly*, 2017

Danesh - GDC Tech Toolbox - Game Developers Conference, 2017

The Digital Muse - New Scientist Live, 2016

We've Run Out Of Planets - EGX 2016

Don't Be Human - International Bot Summit, 2015

How AI Will Run The Games Industry - Rezzed 2015

The Lost Art Of Dreaming - Videobrain, 2014

Generate Everything - Indievelopment, 2014

The Future of the Games Industry - Panel, IGGI PhD Launch Event, 2014

Seminar Series Invited Talks - NYU, Essex University, Canterbury University, University College Dublin, Warwick University, 2013-15

Panels

AI And The Future Of Gaming - Guardian Live, 2016

Can Computers Be Feminist? - Different Games, 2015

The Future of Computational Creativity - International Conference on Computational Creativity, 2014

The Future of Game AI - Develop Conference, Brighton 2013

Tutorials and Lectures

Tools for the Next Procedural Generation – Falmouth University Games Lectures, 2017

Designing Games around AI – IEEE Computational Intelligence in Games, Malta, 2016

A History Of Procedural Generation – IGGI Guest Lecture, 2016

A Brief History Of The Future Of Twitterbots – Coimbra Computational Creativity Codecamp, 2015

SELECTED PUBLICATIONS

For a fuller list of publications, please see my academic profile at www.gamesbyangelina.org/cv.

Books and Book Chapters

“Twitterbots: Making Machines That Make Meaning” – T. Veale and M. Cook
MIT Press, Spring 2018

“Ethics” and “Rules and Games” – M. Cook
Chapters in Procedural Generation in Game Design, CRC, 2017

“Rules and Mechanics” – M. Nelson, J. Togelius, C. Brown and M. Cook
Chapter in The Procedural Content Generation Book, Springer, 2015.

“Towards the Adaptive Generation of Bespoke Game Content” – C. Browne, S. Colton, M. Cook, and J. Gow
Chapter in IEEE Handbook of Digital Games, Wiley, 2014.

“Creating Code Creatively” – M. Cook
Chapter in Creativity and Videogames, Elsevier, 2013

Journal Papers and Special Issues

“AI Based and AI Assisted Game Design” (Associate Editor, Special Issue)
Special Issue of IEEE Transactions on Computational Intelligence and AI in Games, Forthcoming

“The ANGELINA Videogame Design System” Parts I and II – M. Cook, S. Colton and J. Gow
IEEE Transactions on Computational Intelligence and AI in Games, Vol. 9, Issue 2 and Issue 3, 2016

“Feminism and Procedural Content Generation: Toward a Collaborative Politics of Computational Creativity”
A. Phillips, G. Smith, M. Cook, T. Short.
Digital Creativity, Vol. 27, Issue 1, 2016

“Gamika: Art Based Game Design” – B. Perez, S. Colton, E. Powley, T. Krzywinska, E. Geelhoed and M. Cook
Art/Games Vol. 1, 18-24, 2016.

“Creativity in code: generating rules for video games” – M. Cook
Invited Article, ACM Crossroads, Volume 19, Issue 4, 2013

Conference and Workshop Papers

“A Vision For Continuous Automated Game Design” – M. Cook
Proceedings of Experimental AI and Games at AIIDE 2017 (to appear)

“Towards The Automatic Optimisation Of Procedural Generators” – M. Cook, J. Gow and S. Colton
Proceedings of the Computational Intelligence in Games Conference, 2016

“Generating Code For Expressing Simple Preferences” – M. Cook and S. Colton
Proceedings of the International Conference on Computational Creativity, 2015

“Formalising Non-Formalism: Breaking The Rules Of Automated Game Design” – M. Cook and G. Smith
Proceedings of Foundations of Digital Games, 2015 – **Best Paper**

“AI-Based Game Design Patterns” – M. Treanor, A. Zook, M. Eladhari, J. Togelius, G. Smith, M. Cook, T. Thompson, B. Magerko, J. Levine & A. Smith. Proceedings of Foundations of Digital Games, 2015

“Ludus Ex Machina: Building A 3D Game Designer That Competes Alongside Humans” – M. Cook and S. Colton
Proceedings of the International Conference on Computational Creativity, 2014

“Automating Game Design In Three Dimensions” – M. Cook, J. Gow and S. Colton
Proceedings of the AI and Games Symposium at AISB, 2014 – **Best Paper**

“Nobody’s A Critic: On The Evaluation Of Creative Code Generators” – M. Cook, S. Colton and J. Gow
Proceedings of the International Conference on Computational Creativity, 2013

“Aesthetic Considerations for Automated Platformer Design” – M. Cook, S. Colton and A. Pease
Proceedings of the Conference on Artificial Intelligence In Digital Entertainment, 2012

“Initial results from co-operative co-evolution for automated platformer design” – M. Cook, J. Gow and S. Colton
Proceedings of the Applications of Evolutionary Computation, 2012 – **Best Paper, Games Track**

“Multi-faceted evolution of simple arcade games” – M. Cook, S. Colton
In Proceedings of Computational Intelligence and Games, 2011

ORGANISATION

Founder, Organiser (2014-Present) – PROCJAM, The Procedural Generation Jam
Co-Founder, Organiser (2014-2016), Steering Committee – Experimental AI & Games (EXAG)
Founder, Organiser (2015-2016) – Computational Creativity & Games Workshop (CCGW)
Co-founder, Organiser (2013) – AI & Game Aesthetics Workshop (AIGAW)
Organiser (2008-2011) – Imperial College Games And Media Event (GAME)
Publicity Chair – IEEE Computational Intelligence in Games (CIG)
Playable Experiences Chair, Publicity Chair, Livestream Organiser – AAAI Artificial Intelligence in Interactive Digital Entertainment (AIIDE)
Publicity Chair, Livestream Organiser – International Conference on Computational Creativity (ICCC)
Publicity Chair – AISB AI & Games Workshop (AIGW)
Program Committee (Journals) – TCIAIG, Games and Culture, VIRE, Creativity & Cognition
Program Committee (Conferences) – CIG, AIIDE, FDG, DIGRA, ICCG, AISB, Evo*, AAAI
Program Committee (Workshops) – EXAG, PCGW, CCGW, IDP

AWARDS

EPSRC ‘Telling Tales of Engagement’ grant recipient, 2016
Forbes’ *30 Under 30* in Games, 2015
Shortlisted for ‘Technical Innovation’ and ‘Star of the Future’, GamesIndustry.biz awards, 2015
Best Paper Award: FDG 2015
Best Paper Award, Games Symposium, AISB 2014
Best Paper Award, Games Track, Applications of Evolutionary Computation 2012
Winner of June 2012 *I’m A Scientist, Get Me Out Of Here!*, Wellcome-funded public engagement

OTHER PROFESSIONAL ACTIVITIES

Commissions and Exhibitions

Mad Science – automatically designed videogame commissioned for *The New Scientist*.
Catch Wire – automatically designed videogame commissioned for *Wired*.
To That Sect – exhibited at *babycastles* gallery in New York City.
Rogue Process – selected as part of the Indie Megabooth, GDC 2017.

Published Writing

AlphaGo: beating humans is one thing but to really succeed AI must work with them – The Guardian, 2016
Electric Dreams – a five-part series on modern games research for *Rock, Paper, Shotgun*, 2015
The Saturday Papers – long-running series breaking down games research papers. Syndicated by Gamasutra and the IGDA, 2013-2016.

Game Credits & Other Software

Rogue Process – Developer/Designer, Cut Garnet Games, 2018 (TBC)
Behold The Kickmen – AI Programmer/Consultant, Size Five Games, 2017
A Rogue Dream – Developer/Designer, 2014
A Puzzling Present – Programmer, Games By ANGELINA, 2013
I have developed over a dozen smaller games, available online at <http://cutgarnetgames.itch.io>
Danesh – A procedural generation assistant. Available on the Unity Asset store. <http://danesh.procjam.com>
Spritely – A tool for automatically generating sprites from words. <https://github.com/gamesbyangelina/spritely>

SELECTED PRESS COVERAGE

Selected articles and broadcasts and cover or feature my research and other academic work:

The Guardian - “The strange future of emotional AI” - K. Stuart, October 2016
New Scientist - “When infinity gets boring” - D. Heaven, September 2016
Eurogamer - “Inside the Procedural Generation Jam” - C. Donlan, January 2015
PC Gamer - “The Procedural Generation Jam” - J. Skrebels, Dec 2014
NRC - “Angelina De Gamemachine” - Niels T’Hooft, April 2014
PC Gamer - “Intelligent Game Design” - P. Warr, April 2014
Wired - “Meet Angelina” - Jan 2014
Eurogamer - “Plastic Soul - One Man’s Quest To Build An AI That Can Create Games” - Feb 2013
Ars Technica - “Artificial intelligence project builds A Puzzling Present” - M. Geuss, Dec. 2012
Rock, Paper, Shotgun - “The AI That Designs Its Own Games” - L. Denby, June 2012
New Scientist - “AI designs its own videogame” - J. Aron, March 2012
Develop - “Hello Game World” - D. Heaven, February 2012
I have also featured in or been interviewed by **Edge**, **The New Yorker**, **Le Monde**, **Vice**, **Engadget**, **Red Bull eSports** and appeared on **ABC Radio**, **BBC Radio**, **CBC Radio**, **One Life Left**, **The Guardian Tech Podcast** and the **Crate and Crowbar** podcast.