

Raluca D. Gaina

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Game AI specialist with 10+ years of experience designing intelligent systems, simulations, and applied AI solutions, with a strong focus on games and interactive systems. Co-founder of a startup applying AI to automate playtesting, inform and optimise tabletop board game design. Experienced in translating research into practical applications, mentoring and collaborating with interdisciplinary teams, and driving AI initiatives from concept to implementation. Currently transitioning into industry roles in game development and applied AI.

Skills

AI & Machine Learning	Programming & Tools	Leadership & Strategy
✓ Reinforcement Learning, Evolutionary Algorithms ✓ Simulation Systems & AI-driven testing ✓ Generative AI applications (prototyping, evaluation) ✓ Experiment design, evaluation, and optimisation	✓ Python, C#, Java ✓ Unity (game prototyping) ✓ ML frameworks: PyTorch, TensorFlow (working knowledge, applied use) ✓ Debugging, problem solving, attention to detail	✓ AI projects planning and execution ✓ Translating research into production-ready systems ✓ Interdisciplinary collaboration (technical and non-technical stakeholders) ✓ Mentoring and team development ✓ Technical communication and education

Experience

Co-founder / Director

Tabletop R&D | 2023 – Present

- Built AI-driven simulation platform to automate playtesting for tabletop games
- Created “digital twins” of physical games to run thousands of simulations and optimise balance and design
- Worked with commercial clients including Bright Eye Games, AP Board Games, and Underdog Games, to translate design challenges into AI-driven solutions
- Secured £120k+ in grant funding to support product development and innovation
- Leading transition toward a SaaS product and user-facing tools
- Defined product direction, technical roadmap, and AI integration strategy
- Communicated with a variety of technical and non-technical stakeholders

Game AI Researcher & Lecturer

Queen Mary University of London | 2021 – 2026

- Designed and developed AI systems and simulation tools for game design and analysis
- Led, designed and delivered MSc and BSc courses in Game AI and game development
- Supervised 20+ student projects, many producing playable prototypes and research outputs
- Regularly communicated complex AI and game concepts to diverse audiences
- PhD supervisor and research impact coordinator in IGGI Doctoral Programme

Research & Teaching Roles (AI & Games)

Queen Mary University of London / University of Essex | 2016 – 2021

- Contributed to multiple AI and game-related research projects
- Collaborated across research and industry partnerships (e.g., DSTL, Alan Turing Institute)
- Developed and delivered teaching in AI, game development, and computational creativity
- Developed and prototyped AI-driven systems in game contexts
- Completed research internship at Microsoft Research working on multi-agent reinforcement learning environments
- Collaborated with interdisciplinary teams across academia and industry

Selected AI & Game Projects

1. **AI Playtesting & Simulation Platform (Tabletop R&D)**. End-to-end system for modelling, simulating, and analysing board games using AI agents. Based on the **Tabletop Games Framework** (<https://github.com/GAIGResearch/TabletopGames/>), leading innovative research in AI and tabletop board games.
2. **General Video Game AI Research**. Developed planning and decision-making systems using evolutionary algorithms, and led state of the art AI competitions. **Multi-Agent Reinforcement Learning Environments**. Designed and implemented competitive environments for AI benchmarking with Microsoft Research.
3. **Game Development (Unity/C# & Java)**. Built multiple prototypes, including fully developed game systems.

Education

- [2021] PhD, Intelligent Games & Game Intelligence – Queen Mary University of London
- [2016] MSc, Computer Games (Distinction) – University of Essex
- [2015] BSc, Computer Games (First Class) – University of Essex

Selected Leadership & Community

- General Chair, IEEE Conference on Games 2026
- Organiser, London Game AI Meetup (2019–2024)
- Chair and reviewer across major AI & games conferences and journals
- Mentoring roles and part of Athena Swan and Women in Games teams

Selected Achievements

- Best Artifact Award, Best PC Member Nomination – AIIDE 2019
- Best Paper Award Nomination – IEEE Conference on Games
- MSc Project Prize and K.F. Bowden Memorial prize (highest marks) – University of Essex
- Multiple competition placements in AI, game development and science communication challenges, including IEEE Present Around the World and IEEE CoG video competitions

Research Publications

A complete list of publications is available at <https://rdgain.github.io/publications>