

Curriculum Vitae



Date of Birth 14th December 1986
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Research Mission

My goal is to engineer **artificial systems that are creative** in their own right and in interaction with people. Moreover, I am interested in how creative AI is perceived by its users and the public, and how we can foster its adoption in the workplace and society. To this end, I conduct interdisciplinary, theoretical work and applied research in various creative domains such as videogames and design, bridging between AI, HCI, Psychology, Philosophy & Creative Practice.

Current Positions

- May 2020 – Mar 2022** **Aalto University, Espoo, Finland**
 Assistant Professor in Creative Technologies (University Website)
 Tenure Track Assistant Professorship at the Department of Computing, fostering cross-school research on the subject of creative technologies. Principal investigator in the Interactive AI Programme of the Academy of Finland Flagship Programme Finnish Center for Artificial Intelligence (FCAI)
- May 2020 – Mar 2022** **Aalto University, Espoo, Finland / Finnish Center for Artificial Intelligence (FCAI)**
 Postdoctoral Researcher
 3-year post-doc in the Academy of Finland Flagship Programme Finnish Center for Artificial Intelligence (FCAI). PIs: Prof Perttu Hämmäläinen and Prof Antti Oulasvirta.
- Nov 2020 –** **Queen Mary, University of London, London, UK**
 Visiting Researcher
 Ongoing collaboration with the Game AI Research Group and PhD co-supervision.
- May 2020 –** **Institute for Molecular Medicine Finland (FIMM), University of Helsinki, Finland**
 Visiting Researcher
 Collaboration with Dr Vilja Pietiäinen and Prof Peter Horvath at the High Content Imaging and Analysis Unit, integrating machine learning into an imaging-based SARS-CoV-2 serology test. **Patent** and **Nature Communications** submission under review.

Education

- 2018–2020** **Queen Mary, University of London, London, UK (Game AI Research Group)**
- 2014–2018** **Goldsmiths, University of London, London, UK (Computational Creativity Group)**
Doctor of Philosophy (PhD)
 Thesis: Intrinsic Motivation in Computational Creativity Applied to Videogames
 Funding: Intelligent Games & Game Intelligence (IGGI) Doctoral Training Centre
 World-leading PhD programme targeting Games and Creative Industries. Access to a wide network of PhD students and industry partners.
 Supervision: Prof Simon Colton (Queen Mary / Monash University),
 Dr Jeremy Gow (Queen Mary), Prof Paul Cairns (University of York),
 Dr Christoph Salge (New York University / University of Hertfordshire)

- 2007–2014** **Johannes Gutenberg-University, Mainz, Germany**
Magister Artium (M.A., 1st class)
 Subjects: History of Art, Computer Science, Business
 Thesis: Design and Evaluation of Algorithms for the Creation of Novel
 and Unexpected Recommendations in Art Collections
- Bachelor of Science (BSc, 1st class)**
 Subject: Computer Science
 Thesis: Effects of Anticipation in Individually Motivated Behaviour on Survival
 and Control in a Multi-Agent Scenario with Resource Constraints
 In collaboration with the Adaptive Systems Research Group,
 University of Hertfordshire, UK. Published as journal article.
- 2010 – 2011** **University of Glasgow, Glasgow, UK (Study Abroad)**
 Subjects: Computer Science, Arts & Media Informatics, History of Art

Research Visits & Previous Work Experience

- Oct 2019 –** **University of Helsinki, Helsinki, Finland**
Oct 2019 Visiting Researcher
 Funded collaboration with the Discovery Research Group led by Prof Hannu Toivonen.
 Resulting in a publication on integrating agency into a formal framework of creativity.
- Apr 2018 –** **Microsoft Research, Cambridge, UK**
Jul 2018 Intern
 Working under Dr Katja Hoffman on intrinsically motivated, collaborative AI in Project
 Malmo, an AI experimentation platform built on top of the game Minecraft.
- Jan 2018 –** **New York University, New York City, US**
Apr 2018 Visiting Researcher
 Funded collaboration with Prof Julian Togelius at NYU’s Game Innovation Lab. Re-
 sulting in an award-winning paper on intrinsically motivated non-player characters.
- Sep 2014 –** **Goldsmiths, University of London, UK**
Sep 2016 Doctoral Student
 Research in the European Commission FP7 project “What-If-Machine” (WHIM, grant
 611560), investigating computational imagination techniques across 5 sites.
- May 2014 –** **Darmstadt University of Technology, Darmstadt, Germany**
Sep 2014 Student Research Assistant
 Design and implementation of a tool for the automatic evaluation of machine-learning
 experiments. In particular advising on appropriate statistical tests.
- Jun 2011 –** **SAP SE Research, Darmstadt, Germany**
Dec 2013 Research- and Thesis Student
 UX design and development in project “Infostrom”, funded by the German Federal
 Ministry for Education and Research (grant 13N10711-15) and spanning 10 sites.

Awards & Honours

- 2021** **Finalist in “AI Game Dev” Competition**
 Europe’s first research-driven competition to enhance game technology. Entered
 with our work published in S. Roohi, C. Guckelsberger, A. Relas, H. Heiskanen, J.
 Takatalo, and P. Hämäläinen. Predicting Game Engagement and Difficulty Using AI
 Players. Proc. of the ACM on Human-Computer Interaction, 5(CHI Play):1–18, 2021.
- 2020** **Best Paper Award (International Conference on Computational Creativity)**
 Awarded for S. Colton, A. Pease, C. Guckelsberger, J. McCormack, and M. T. Llano.
 On the Machine Condition and its Creative Expression. In Proc. Int. Conference on
 Computational Creativity (ICCC), pages 342–349, 2020.

- 2018** **Best Paper Award (IEEE Conference on Computational Intelligence and Games)**
Awarded for C. Guckelsberger, C. Salge, and J. Togelius. New And Surprising Ways to be Mean: Adversarial NPCs with Coupled Empowerment Minimisation. In Proc. Conference on Computational Intelligence and Games (CIG), pages 1–8. IEEE, 2018.
- 2018** **Finalist in “Creative Computing for the Digital Economy” Competition**
A category in the UK-wide “Connected Nations Pioneers” competition, hosted by the EPSRC to recognise exceptional postgraduate research contributions. Awarded for my work on intrinsically motivated non-player characters for next-gen game AI.
- 2017** **Best Paper Honourable Mention (CHI Play)**
Awarded for C. Guckelsberger, C. Salge, J. Gow, and P. A. Cairns. Predicting Player Experience Without the Player. An Exploratory Study. In Proc. SIGCHI Annual Symposium on Computer-Human Interaction in Play (CHI Play), pages 305–315. ACM, 2017. Honourable mentions are given to the top 5 papers in the competition.
- 2014** **Prize for an Outstanding Magister Thesis**
Awarded by the Johannes Gutenberg-University Mainz, Germany.
- 2013** **Prize for an Outstanding BSc Thesis**
Awarded by the Johannes Gutenberg-University Mainz, Germany.

Research Funding & Grants

- 2022** **Helsinki Institute of Technology (HIIT) Activity Funding**
17 519 € for MSc thesis work on Creative Practitioner Perception of State-of-the-art AI Image Generation (9125064HIIT).
- 2022 – 2025** **3-Year Academy of Finland Postdoctoral Research Grant**
234 510 € for research on Next-Generation Computational Intrinsic Motivation (NEXT-IM, Decision No. 349036).
- 2020 – 2022** **3-Year Postdoctoral Research Grant (transitioned early)**
Provided through the Academy of Finland Flagship Programme Finnish Center for Artificial Intelligence (FCAI) under the “Interactive AI” track.
- 2014 – 2018** **4-Year Doctoral Research Grant**
Awarded by the Engineering and Physical Sciences Research Council (EPSRC) for research on Intelligent Games & Game Intelligence (IGGI).
- 2010 – 2013** **3-Year Student Scholarship by the German Academic Scholarship Foundation**
The German Academic Scholarship Foundation is Germany’s oldest, largest and most competitive sponsor of outstanding students (<0.5% of German students).
- 2010 – 2011** **1-Year Exchange Scholarship by the German Academic Exchange Service**
Prestigious full stipend to study abroad in Glasgow by the world’s largest funding organisation for the international exchange of students and researchers.

Research Output & Impact

I regularly **publish at the leading venues** of Human-Computer Interaction, Game AI research and Computational Creativity: ACM CHI/CHI Play, IEEE Conference on Games (COG) / Conference on Computational Intelligence and Games (CIG), and the Int. Conference on Computational Creativity (ICCC). I also get invited to prestigious events such as the **Dagstuhl** Seminars in Computer Science.

- Google Scholar author metrics: 423 citations, **h-index=13**, i10-index=13. Link: bit.ly/30C02qW.
- **28+ peer-reviewed scientific articles** across Human-Computer Interaction, (Game) AI, Artificial Life, Cognitive Science, Computational Creativity and Philosophy. **One patent, another pending**.
- Two **best paper awards** (International Conference on Computational Creativity; IEEE Conference on Computational Intelligence and Games), one **honourable mention** (CHI Play, top 5%).

- Cited by world-leading departments, e.g. Google DeepMind/Brain, MIT, Princeton, Berkeley.
- Providing invited **research comments** in popular science media outlets such as IEEE Spectrum.
- Applying my research in games **industry collaborations**, presently with Rovio and Nextgames.
- Communicating my research on Twitter with **1000+ followers**.

Teaching & Supervision Experience

Detailed portfolio available on request. My teaching incorporates state-of-the-art research and strengthens students' intrinsic motivation by providing choice in assignments, frequent achievements and flexible group work while, amongst others, respecting individual differences and working at an eye level. I adjust my teaching to account for the expertise of students from various schools and departments.

Year	Course Title	Site ¹	Size	Role	ECTS	Optional
Bachelor Level Courses						
16-17	Principles & Applications of Programming	Gold	≈ 100	Teaching Assistant	≈ 10 ²	No
2017	Game AI Programming	Gold	≈ 35	Visiting Lecturer	≈ 5 ²	No
Master Level Courses						
2021	Playability Evaluation (DOM-E5082)	Aalto	15	Visiting Lecturer	3	Yes
2022	Intelligent Comp. Media (DOM-E514101)	Aalto	≈ 20	Co-Lecturer	3	Yes
Master and Postgraduate Level Courses						
2021	Computational Creativity Seminar (CS-E4002)	Aalto	5	Co-Lecturer	5	Yes
Tutorials Presented at Academic Conferences						
2016	Intrinsic Motivation in Game AI	CIG	≈ 50	Co-Lecturer	-	Yes
2019	Generative Design in Minecraft Competition	COG	≈ 30	Co-Lecturer	-	Yes
2021	Computational Intrinsic Motivation	SIG	≈ 30	Lecturer	-	Yes

1: Gold=Goldsmiths, University of London; Aalto=Aalto University; CIG=IEEE Conference on Computational Intelligence in Games; COG=IEEE Conference on Games; SIG=Special Interest Group on "Modelling the Needs and Motivational Dynamics of Biological Agents" at Aalto. 2: Conversion from the UK academic credit system.

I supervise a **wide range of topics** at the intersection of Human-Computer Interaction, Computational Creativity and (Videogame) AI **from Bachelor to doctoral level**. I particularly enjoy supervising students from different disciplines in multidisciplinary research.

Year	Student	Site ¹	Thesis Title
Bachelor Theses			
20-21	Niilo Salo	Aalto	Complexity Science in Game Design
20-21	Joose Lehtinen	Aalto	Human-Computer Co-Creation in Procedural Level Design
2021	Panu Liesiö	Aalto	The Research Landscape of Computational, Creative Problem-Solving
Master Theses			
2021	Inan Evin	Aalto	Cine-AI: Generating Game Cutscenes in the Style of Human Directors
2021	Susanna Värtinen	Aalto	Procedural Video Game Quests With the GPT-2 Language Model
21-22	Xuehao Zhang	Aalto	Simulation-Based Game Testing for Estimating Player Curiosity
21-22	Antti Mäkipää	Aalto	How Players Experience CEM-Driven Non-Player Characters
Doctoral Theses			
19-23	Sebastian Berns	QMUL	Diversity in Generative Deep Learning

1: Aalto=Aalto University; QMUL=Queen Mary, University of London.

Positions of Trust

- 2022 – Advisory Board Member of ERASMUS+ project ACT.AI**
Advising on the **development of a curriculum for teaching AI art** to computer science MSc students, combining philosophy, critical thinking, artistic practice, and creative problem solving.
- 2020 – 2021 Co-Founder of the Computational Creativity Task Force**
Fostering the development of Computational Creativity as field and community. In collaboration with the Association of Computational Creativity steering committee.
- 2019 – 2021 Publicity Chair for the Association for Computational Creativity**
- 2020 Tutorial Chair for the International Conference on Computational Creativity**

Organisational Roles

- 2021 – SIG “Modelling the Needs and Motivational Dynamics of Biological Agents”**
Main organiser of a special interest group (SIG) to investigate the computational modelling of the needs and motivations that guide the decision-making of humans specifically, and of living beings more generally. Hosted at Aalto, I bring together international speakers with an interdisciplinary audience from several Finnish universities.
- 2019 – Generative Design in Minecraft (GDMC) Competition**
Acting as co-organiser to advance computational creativity through procedural content generation, computational storytelling and player experience modelling. We **bring together academics and the general public** to make a larger societal impact.
- 2019 Tutorial on the Generative Design in Minecraft (GDMC) Competition**
Co-organised at the IEEE Conference on Games (COG).
- 2018 First Workshop on Curiosity in Games**
Co-organised at the ACM Foundations of Digital Games conference (FDG).
- Cybernetic Serendipity Reimagined Symposium**
Co-organised at the Convention of the Society for the Study of Artificial Intelligence and the Simulation of Behaviour (AISB).
- 2017 AISB Members Workshop VII – Serendipity Symposium**
Co-organised as independent event at St. Mary’s University, London, UK.
- 2016 First Tutorial on Intrinsic Motivation in General Game-Playing and NPCs**
Co-organised at the IEEE Conference on Computational Intelligence & Games (CIG).

Reviewer & Programme Committee Roles

Serving on the program committees and reviewing for the leading conferences of my field. Programme committee (associate chair) member of CHI Play, reviewing for ACM CHI, IJCAI/ECAI, the International Conference on Computational Creativity (ICCC), and the IEEE Conference on Games (COG) / Conference on Computational Intelligence and Games (CIG). Reviewing for several journals, e.g. Artificial Life (MIT Press), Autonomous Agents & Multi-Agent Systems (Springer), Frontiers in Neurorobotics (Frontiers), IEEE Transactions on Games.

Invited Talks & Panels

- 2022 Workshop at the International Conference on Computational Creativity (ICCC)**
Panel: The Role of Embodiment in the Perception of Human and Artificial Creativity
- 2021 Aalto University**
Panel: CS Research Day – What is it like to be a Computer Science researcher?

- 2020** **Centre for Doctoral Training in Intelligent Games & Game Intelligence (IGGI)**
Panel: Future Directions in Computational Creativity
- 2019** **Aalto University (Visual Computing Seminar)**
Talk: Intrinsically Motivated Reinforcement Learning for Next-Gen Video Game AI
- Dagstuhl Seminar: Computational Creativity Meets Digital Literary Studies**
Talk: Does Intentionality Matter in Computational Storytelling?
- University of Helsinki**
Talk: Advancing Game AI Through Intrinsically Motivated Reinforcement Learning.
- 2018** **Microsoft Research Cambridge**
Talk: Intrinsically Motivated Reinforcement Learning for Next-Gen Video Game AI
- New York University (Games Innovation Lab)**
Talk: Intrinsic Motivation in Games: Steering Character Behaviour & Player Modelling
- 2017** **University of Sussex (Centre for Cognitive Science Research Seminar)**
Talk: Computational Creativity at the Edge of Being: Reconsidering Creativity and Intentional Agency in the Enactive AI Framework
- Enactive Seminars Online (ENSO) Seminar**
Talk: Investigating the Role of Empowerment Maximisation in Constitutive Autonomy, Adaptivity and Open-Ended Development
- University of Hertfordshire (Research in Adaptive Systems Group Seminar)**
Talk: Predicting Player Experience Without the Player. An Exploratory Study.
- Falmouth University (MetaMakers Institute)**
Talk: Intrinsic Motivation in Digital Games: From Steering Character Behaviour to Evaluating Game Content
- International Conference on Computational Creativity**
Panel: Computational Creativity and Discovery
- 2016** **University of Hertfordshire (Research in Adaptive Systems Group Seminar)**
Talk: Collaboration in Co-Creative Scenarios via Coupled Empowerment Maximisation: A Case-Study in Video Games
- Tungsten Centre for Intelligent Data Analytics**
Talk: Does Empowerment Allow for Fully Enactive Artificial Agents?

Other Education & Expertise

- **Scrum Master training**, then working as scrum master for one year at SAP SE Research
- **Machine Learning Summer School**, London, 2019 (<12% acceptance rate)
- Workshop in Research Methods & Skills (4-weeks, University of York)
- Workshop in **AI-driven Game Design** (4-weeks, University of Essex)
- Workshop in **Game Development** with Unity & Game AI (4-weeks, Goldsmiths, Univ. of London)
- Leadership Skills, Negotiation Skills, Presentation Skills (3 separate 2-day workshop at SAP SE)

Language Skills (CEFR Self-Assessment)

- German: native
- English: C2 (understanding, speaking, writing)
- French: B1 (understanding, speaking, writing)
- Finnish: A2 (understanding), A1 (speaking, writing)