

J. Derek Lomas, PhD

Tenured Assistant Professor of Positive AI · TU Delft, Industrial Design Engineering,
Design Aesthetics Section

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Research Interests

AI & Experience Design, Wellbeing, Human-Centered Artificial Intelligence, Learning Engineering, Quantum Computing, EEG, Music Cognition, Future Studies, Data Science, Cybernetics, Human-Computer Interaction, EdTech, Game Design.

Academic History

- | | |
|--------------|---|
| 2017–present | Industrial Design Engineering, TU Delft. Tenured Assistant Professor, Design Aesthetics Section. Research on aligning technology with humanity. |
| 2015–2017 | The Design Lab, UC San Diego. Design Fellow and Postdoctoral Scholar. 2-year appointment under Don Norman. AI-assisted design, AI in education, design for human intelligence. |
| 2009–2014 | HCI Institute, Carnegie Mellon University. Design Fellow and Postdoctoral Scholar. Interaction. Dissertation: <i>Optimizing Motivation in Game Design Experiments</i> . Advisors: [REDACTED] |
| Summer 2008 | Massachusetts Institute of Technology. Design Fellow and Postdoctoral Scholar. Engineering. International Development Design Summit – \$100,000 grant for computers for education in developing contexts |



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1999–2003

Yale University. B.A. Cognitive Science. Worked with Nick Bostrom.

Entrepreneurial

Playpower Labs (2012–present)

CEO and Chief Learning Scientist. Award-winning learning games used by millions of students. Data-science and game-design contracts with Pearson, Houghton-Mifflin Harcourt, AltSchool, BrainPOP, Scientific Learning, Carnegie Learning. Grants from Gates, MacArthur, and Schmidt foundations.

Playpower Games

Free K–8 math games platform, Common Core / TEKS aligned, with live Kahoot-style quizzes; integrates with Google Classroom, Clever, ClassLink.

EdOptimize / Smart Paper

Computer-vision platform turning hand-completed worksheets into instant feedback. 5M+ students reached across India.

NeuroUX

HIPAA/GDPR-compliant cognitive assessment and Ecological Momentary Assessment (EMA) platform with wearables integrations (Fitbit, Garmin, Apple Watch, ActiGraph).

Source Library

Open digital archive of pre-1700 Hermetic, alchemical, and natural-magic texts. 12,347 books · 11,218 new English translations · 152 languages.

Selected Peer-Reviewed Publications

2026 Lomas JD et al. Parametric Analysis of Feature-Space
Music Imagery and Perception. *IEEE*.



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- 2025 Liao D, Lomas D, Yu C. Enhancing the aesthetic appeal of AI-generated physical product designs through LoRA fine-tuning with human feedback. *AIGC*.
- 2025 Lomas D, Xue H. The Harmony of Opposites in Design and Philosophy. *In: Perspectives on Harmony, ed. Li, Lai, Benitez. Bloomsbury*.
- 2024 Lomas JD, van der Maden W, Lion G, Bandyopadhyay S, Litowsky Y, Xue H, Desmet P. Evaluating the alignment of AI with human emotions. *Advanced Design Research*.
- 2024 van der Maden W, van Beek E, Halperin BA, Jääskeläinen P, Kang E, Kun P, Lomas JD, van der Burg V. Death of the Design Researcher? Creating Knowledge Resources for Designers Using Generative AI. *ACM DIS*.
- 2024 van der Maden W, Lomas D, Hekkert P. Developing and evaluating a design method for positive artificial intelligence. *AI EDAM*.
- 2023 van der Maden W, Lomas JD, Hekkert P. A framework for designing AI systems that support community wellbeing. *Frontiers in Psychology*.
- 2023 Patel N, Nagpal P, Shah T, Sharma A, Malvi S, Lomas D. Improving mathematics assessment readability: Do large language models help? *Journal of Computer Assisted Learning*.
- 2022 Lin A, Lomas JD. The Enigma of Mind: A Theory of Evolution and Conscious Experience. *In: Enigmas – Darwin College Lectures. Cambridge University Press*.
- 2022 Lomas JD, Lin A, Forster D, Huisman G, Habekost J, Beardow C, Mullen T, Pandey P, Ahmad N, Miyapuram K, van der Maden W, Cross E. Resonance as a Design Strategy for AI and Social Robots. *Frontiers in Neurorobotics*.
- 2022 Lomas D, Xue H. Harmony in Design: A Synthesis of Design Philosophy, the Sciences, Economics, and Design.
- 2022 Shah T, Patel N, Lomas D, Sharma A. EdOptimize: A Learning Analytics Platform. *LAK22*.



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- 2021 Lomas D, Karac M, Gielen M. **Design Space Cards: Using a Card Deck to Navigate the Design Space of Interactive Play.** *ACM CHI PLAY*.
- 2019 Lomas D. **How Might Data-Driven Design Help Reduce the Poverty-Achievement Gap?** *Mind, Brain and Education*.
- 2017 Lomas D, Forlizzi J, Patel N, Shodhan S, Patel K, Poonwala N, Koedinger K. **Is Difficulty Overrated? Investigating the Effects of Choice, Novelty and Suspense on Intrinsic Motivation.** *ACM CHI. Honorable Mention*.
- 2016 Lomas D, Forlizzi J, Poonwala N, Patel N, Shodhan S, Patel K, Koedinger K, Brunskill E. **Interaction Design as a Multi-Armed Bandit Problem.** *ACM CHI*.
- 2013 Lomas D, Forlizzi J, Koedinger K. **Optimizing Challenge in an Educational Game Using Large-Scale Design Experiments.** *ACM CHI*.

Full publication list – 75+ papers, 1,500+ citations – at Google Scholar and /research.

Funding

- NWA-ORC Quantum Inspire – PhD student (Caiseal Beardow)
- Quantum Delta “Quantum & Society” with Deborah Nas – Postdoc, 1 day/week personal time
- eHealthjr with Valentijn Visch – Postdoc
- Google AI Gift – €36,000
- KNAW fellowship for a workshop on Resonance – €10,000
- 4TU support on Wellbeing in Engineering Education – ½ PhD
- ErasmusX “AI in University Education” – 1 day/week personal time



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Invited Talks (Selected)

- 2026 IT University of Copenhagen, HCI Design Section. Vibe Coding Workshop (follow-up to invited HCI talk)
- 2026 TU Delft IDE Master Class. AI and Experience Design (May 20–21 cohort)
- 2026 Embassy of the Free Mind, Amsterdam. Vibe Coding Workshops – recurring series at the BPH
- 2025 Embassy of the Free Mind, Amsterdam. Workshop on AI, Creativity and Esotericism (sold out, July 4)
- 2026 Design Thinking Zeal (online). Humanist AI: Translating the Ancient World
- 2025 Internet Archive, San Francisco. AI coaching around World Digital Preservation Day
- 2025 UNESCO HQ, Paris. Quantum Resonance – interactive exhibit, Opening Ceremony of the UN International Year of Quantum (Feb 4–5)
- 2025 UNESCO. Smart Paper for Learning Assessment
- 2025 OZORA Festival, Hungary. The Nature of Artificial Intelligence; Vibes, Resonance and Harmony in the Age of AI
- 2025 Stanford EEG Topics Seminar. Neural Resonance in Aesthetic Experiences
- 2025 Amsterdam Dance Event (ADE). Speaker
- 2024 Dutch Design Week 2024, Eindhoven. AI Academy Eindhoven)
- 2024 TU Delft. AI & Experience Design Confer



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- 2024 Het Landjuweel Festival, Ruigoord, Amsterdam. Talk on AI, resonance, and design
- 2024 Mo:Dem Festival, Croatia. Talk on resonance and AI
- 2024–present TU Delft IDE (open-enrollment). Designing with AI – Professional Master Class (ASML, Silver Cross, ABN Amro)
- 2022 Experience Research Summit, Salt Lake City / Provo. Design Resonance
- 2022–present TU Delft StudioLab / IDE. AI & Cocktails – recurring generative-AI mixer (since Sept 2022)
- 2022 Experience Research Summit, Salt Lake City. Design Resonance
- 2022 Amplify AI, Amsterdam. AI for Good Vibes
- 2022 Fruit Punch AI, Eindhoven. AI for Mental Health
- 2020 AI Agora, Delft. AI for Wellbeing
- 2017 Mind, Brain and Education, Erice, Sicily. Large-Scale Learning Systems and the Neuroscience of Poverty
- 2016 Latin American Cognitive and Neuroscience School, Argentina. The Design Challenge of Improving Human Intelligence
- 2013 Carnegie Institute of Technology, Pittsburgh. The Future of Computer-Aided Learning
- 2010 Games for Health, Boston. An Anti-Malaria
- 2009 PopTech, Camden, ME. Open-Source Gamification
- 2009 O'Reilly E'Tech, San Jose. Playpower! \$12 Affordable Computer-Aided Learning



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Teaching (TU Delft)

- AI Research Methods (graduate)
- Research Methods (graduate & undergraduate, 6× total) – lecture: “Experimental Design for Designers”
- Interactive Technology Design (3×) – lectures: “Big History of HCI” and “Cognitive Ergonomics”
- Product Use, Understanding and Experience (3×) – lecture: “Resonance in Design”
- Entrepreneurial Thinking (5×) – lecture: “AI for Design Ideation”
- Exploring Interactions (3×); Understanding Humans (2×)

Student Supervision

25 graduated MSc theses, 6 currently supervised, plus PhDs (incl. Willem van der Maden, 2024 – *Designing Positive AI*; Caiseal Beardow, in progress).

Notable entrepreneurial outcomes from supervised theses: Tim Smits (Unpluq, accepted to Techstars); Marco van der Woude (Breeze); Bryan Zaaier (SenseGlove, leads UX); Ferkan Metin (Envision Glasses, leads UX); Jefta Harwig (Glimp, Philips Entrepreneur Award); Mihovil Karač (Lumies, Shark Tank).

Selected Press

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|------|---|
| 2024 | World Bank AI Repository (RKSMBK case study); ThePrint/ANI – “Smart Paper Recognized by UNESCO”; Tools Co
Playpower Labs deployments across 65,000 |
| 2023 | TU Delft Delft Design Stories – “Positive BoomLive – “In Rajasthan Schools, AI Is T
Paper) |



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2021	New Scientist, Digital Trends, Lifewire, Inner Detail – coverage of EEG-based song-identification research
2020	UC San Diego Health; News-Medical – “New Mobile Platform Can Address Another Serious Complication of COVID-19”
2014	San Diego Union-Tribune – “How Jargon Is Killing Innovation”; Tech.co – Kaplan/Techstars EdTech Accelerator class
2013	Wall Street Journal – “New Approaches to Teaching Fractions”
2011	KQED MindShift – “Preventing the Summer Slide in Math Skills”
2010	NPR; CNN – Playpower / \$12 Computer coverage
2009	Wired; The Guardian; Calit2; PopTech Social Innovation Fellow
2008	ABC News – “Researchers Propose \$12 Computer for Developing Countries”

Recognition

- ACM CHI 2017 – Honorable Mention Award
- PopTech Social Innovation Fellow (2009)
- Ashoka Changemakers Innovation Award
- Recognition from Sesame Street, the White House, the MacArthur Foundation, and DARPA for educational-game work



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