

ESDRAS PARAVIZO

[Portfolio](#) | ep650@cam.ac.uk | Cambridge, UK

EDUCATION

- University of Cambridge, UK** 2021 - present
PhD candidate in Engineering Design.
- Federal University of Sao Carlos, UFSCar, Brazil** 2021
MSc & BSc in Industrial Engineering

RESEARCH EXPERIENCE

- Department of Engineering, University of Cambridge, UK** 2021 - present
PhD Candidate | Supervisor: Prof Nathan Crilly
Project: Computer games for design creativity research, education and practice.
 - Designed and ran a game-based experiment to assess the impact of feedback on design creativity with 35 students.
 - Developed the DS-Viz, a novel semi-automated method for visualising design spaces using Python.
 - Performed mixed methods analysis of interviews, verbalisations and experimental results.
- Faculty of Industrial Design Engineering, Delft University of Technology, The Netherlands** 2024
Visiting PhD Candidate (Mar-May)
 - Established a collaboration with Dr Milene Gonçalves focussing on design creativity using games.
 - Analysed an existing dataset using the DS-Viz method for design space visualisations I developed.
- Department of Mechanical and Industrial Engineering, University of Toronto, Canada** 2024
Visiting PhD Candidate (Jun)
 - Established an ongoing collaboration with Dr Alison Olechowski on collaborative computer aided design (CAD).
 - Currently investigating how DS-Viz can be employed for feedback CAD education and practice.
- Department of Industrial Engineering, UFSCar, Brazil** 2020 - 2021
Research Assistant
Project: Virtual Environments for Workspace Design, Ergonomics & Simulation (Epic Games MegaGrant).
 - Wrote the project's grant proposal and overall research design (\$25,000).
 - Developed a 3D virtual environment using Unreal Engine for workspace design.
- Department of Industrial Engineering, UFSCar, Brazil** 2017 - 2021
Institute for Machine Tools and Factory Management, Technical University of Berlin, Germany 2020
Research Assistant (including two-month research stay in Germany).
Project: Development of 'Learnstruments' for ensuring the transition of Brazilian and German manufacturing companies to Industry 4.0.
 - Led the development of a novel board game for Industry 4.0 education (game available [online for free](#)).
 - Designed and prototyped game materials and conducted workshops with students and industry.
- Department of Technology, Management and Economics, Technical University of Denmark, Denmark**
Student Assistant (remote work) 2016
Visiting Student Assistant (Apr-Jul) 2015
Project: Methods for transferring knowledge from operating offshore units to design, planning, and operations optimisation.
 - Analysed offshore drilling rigs' technical drawings and blueprints.
 - Actively participated in the research data collection and analysis, collaborating in writing journal and conference papers and reports.

TEACHING EXPERIENCE

- Cambridge Advance Online, University of Cambridge, UK** 2023 - present
Tutor for CPD-certified professional development course on Creativity, Problem Solving and Design Thinking.
 • Coached over 40 students in two courses, providing feedback, supporting live sessions and group discussions.
- Department of Engineering, University of Cambridge, UK** 2022 - present
Demonstrator for undergraduate level courses: IA Engineering Drawing, IA Product Design, IA Lego and System Design and Engineering Thinking.
 • Guided students' projects, addressing questions and marking their work to promote learning while having fun.
- Cambridge Centre for Teaching and Learning, University of Cambridge, UK** 2022
Teacher training - An Introduction to Undergraduate Supervision (STEMM)
 • Voluntary course taken to learn the principles and practices of effective teaching.
- Department of Industrial Engineering, UFSCar, Brazil** 2018
Teaching assistant for the Facilities Planning and Design and Ergonomics courses.
 • Coached teams on their projects, scoping and time management, providing support on the use of CAD software, discrete event simulation, digital human modelling and game engines.
- Department of Industrial Engineering, UFSCar, Brazil** 2018
Teacher of professional courses on Computer-Aided Design for Engineering and Microsoft Excel for Engineers.
 • Planned and developed course materials for professional courses on CAD and Excel use in engineering.
 • Delivered lectures, supported student learning throughout the semester and marked student work.

FELLOWSHIPS, GRANTS AND AWARDS

- EPSRC Doctoral Training Partnership, EPSRC & University of Cambridge, UK** 2021 - 2025
 Prestigious, stipendiary studentship awarded for three and a half years (£185,000) to pursue my PhD research.
- Reviewers' Favourite Award, Design Society, Croatia** 2024
 Awarded for paper on the DS-Viz method presented at the DESIGN 2024 conference.
- Ruth B. Noller Research Grant (Finalist), Creative Education Foundation, USA** 2024
 Wrote project proposal selected as finalist among 17 applications for a competitive grant.
- Arthur Shercliff Travel Scholarship, Department of Engineering, University of Cambridge, UK** 2023
 Awarded £1,050 from a competitive departmental grant for pursuing research activities in Canada.
- Epic MegaGrants - Educational Project Funding, Epic Games, USA** 2020
 Wrote the proposal receiving \$25,000 for investigating Unreal Engine use in workspace analysis and design.
- KU Smith Student Award, International Ergonomics Association, Switzerland** 2018
 Awarded a \$5,000 prize in recognition of research excellence for a paper I submitted and presented at IEA 2018.
- Science Without Borders Fellowship, Ministry of Science and Technology, Brazil** 2014 - 2015
 Awarded a competitive, one-year fellowship (\$25,000) to pursue academic activities abroad at Maastricht University (The Netherlands) and at the Technical University of Denmark (Denmark).
- Technological Initiation Fellowship, Ministry of Science and Technology, Brazil** 2013 - 2014
 Wrote the project proposal and received a one-year fellowship (\$2,000) to undertake undergraduate research.

SELECTED REFEREED PUBLICATIONS

Symbols: * denotes the presenter of conference paper, ‡ denotes award-winning papers. Full list [here](#).

1. **Paravizo, E.***, Crilly, N. (2024) *How do we know if a design space representation is useful? Insights from the DS-Viz method*. In: DCC'24 - Eleventh International Conference on Design Computing and Cognition, Montreal, Canada.
2. ‡ **Paravizo, E.***, Crilly, N. (2024) *DS-Viz: a method for visualising design spaces*. In: DESIGN 24 – 18th International Design Conference, Cavtat, Croatia. <https://doi.org/10.1017/pds.2024.106>.
3. Vrolijk, A.*, **Paravizo, E.**, Crilly, N., Olechowski, A. (2023) *The Micro-Processes Involved in Searching Complex Design Landscapes: An Exploratory Case Study Using A Bridge-Building Game*. In: ICED 24 - 24th International Conference on Engineering Design, Bordeaux, France. (Poster)
4. **Paravizo, E.***, Crilly, N. (2022) *Computer Games for Design Creativity Research: Opportunities and Challenges*. In: DCC'22 - Tenth International Conference on Design Computing and Cognition, Glasgow, Scotland. doi.org/10.1007/978-3-031-20418-0_23
5. **Paravizo, E.***, Fonseca, M. L. F., Lima, F. T., Gemma, S., Rocha, R., Braatz D. (2021) *How Ergonomics and Related Courses Are Distributed in Engineering Programs? an Analysis of Courses from Brazilian Universities*. Proceedings of the 21st Congress of the International Ergonomics Association - IEA 2021. doi.org/10.1007/978-3-030-74602-5_78
6. ‡ **Paravizo, E.**, Braatz, D. (2019) *Using a game engine for simulation in ergonomics analysis, design and education: An exploratory study*. Applied Ergonomics 77: 22-28. doi.org/10.1016/j.apergo.2019.01.001
7. Conceição, C. S., Broberg, O., **Paravizo, E.**, Jensen, A. R. (2019) *A four-step model for diagnosing knowledge transfer challenges from operations into engineering design*. International Journal of Industrial Ergonomics 69: 163-172. doi.org/10.1016/j.ergon.2018.11.005
8. **Paravizo, E.**, Braatz, D.*, Gerolamo, M., Chaim, O. C., Esposto, K. F., Rozenfeld, H. (2019) *Towards the next industrial revolution: a board game for teaching I4.0 principles*. In: 26th EurOMA Conference - Operations Adding Value to Society, (4194-4203), Helsinki, Finland.
9. **Paravizo E.***, Braatz D. (2019). *Virtual Simulations for Incorporating Ergonomics into Design Projects: Opportunities and Limitations of Different Media and Approaches*. Proceedings of the 20th Congress of the International Ergonomics Association - IEA 2018, Florence, Italy. doi.org/10.1007/978-3-319-96080-7_45
10. **Paravizo E.***, Braatz D. (2019) *Employing Game Engines for Ergonomics Analysis, Design and Education*. Proceedings of the 20th Congress of the International Ergonomics Association - IEA 2018, Florence, Italy. doi.org/10.1007/978-3-319-96077-7_35
11. **Paravizo E.***, de Souza R.R.L. (2019) *Playing for Real: An Exploratory Analysis of Professional Esports Athletes' Work*. Proceedings of the 20th Congress of the International Ergonomics Association - IEA 2018, Florence, Italy. doi.org/10.1007/978-3-319-96077-7_54
12. **Paravizo, E.**, Cheidde, C. O., Braatz, D., Muschard, D., Rozenfeld, H. (2018). *Exploring gamification to support manufacturing education on industry 4.0 as an enabler for innovation and sustainability*. Procedia Manufacturing, 21: 438-445. doi.org/10.1016/j.promfg.2018.02.142
13. **Paravizo, E.***, Braatz, D. (2017). *Analysis, validation and design: using game engines to support ergonomics intervention and design process*. In: Proceedings of the 12th International Symposium on Human Factors in Organizational Design and Management - ACE-ODAM 2017 (488-495), Banff, Canada.

INVITED TALKS AND WORKSHOPS

Full list [here](#).

1. *Playing with Lego: can we map creativity?* (2024). In person. **Clare Hall Lunchtime talks series**. UK.
2. *Design spaces, creativity and games* (2024). In person. **Department of Design, Organisation and Strategy**. Faculty of Industrial Design Engineering, TU Delft. The Netherlands.
3. *Mapping design creativity: What are designers strategies during ideation sessions?* (2024). In person. **Connected Creativity Lab**. Faculty of Industrial Design Engineering, TU Delft. The Netherlands.
4. *How do designers behave during space exploration? insights from a novel visualisation method* (2024). Online. **Ready Lab group presentation**. Department of Mechanical & Industrial Engineering, University of Toronto. Canada.
5. *The Industry 4.0 Boardgame* (2023-24). Workshop facilitation. **Global Production Engineering Spring School**, Technical University of Berlin. Germany.
6. *The Industry 4.0 Boardgame* (2022). Workshop facilitation. Faculty of Engineering Technology - **University of Twente** and HAN Lean QRM Centrum, **HAN University of Applied Sciences**, The Netherlands.

INDUSTRY PROJECTS

Participation as a project assistant within Industry-University collaboration schemes at the Department of Industrial Engineering, at the Federal University of Sao Carlos.

Professional training in Industry 4.0 transition process 2019 - 2022

Participating companies: **AB Inbev** (Brazil), **Beiersdorf - Nivea** (Brazil), **Volkswagen** (Brazil), **Nestlé** (Brazil), **Saint-Gobain** (Brazil), **Electrolux** (Brazil), **EY** (Brazil), **Fraunhofer IPK** (Germany).

- Designed workshop materials and facilitated in-company workshop sessions.
- Led debriefing discussion to reflect on learning outcomes and real-life implications.

Professional training in Ergonomics and Workspace Design – ErgoPRO Workshop 2016 - 2022

Participating companies: **Samsung** (Brazil), **Hyundai** (Brazil), **Faber-Castell** (Brazil), **Cnam** (France).

- Designed workshop materials (including 3D game-based simulation) and facilitated in-company workshops.
- Led debriefing discussion to reflect on learning outcomes and real-life implications.
- Developed and got a patent for an educational kit for teaching ergonomics and workspace design.

Development of a methodology for Ergonomics and Design intervention integrating participatory design principles and computational systems 2016 - 2017

Industry Partners: **SESI-MG** (Brazil), **Gerdau** (10th steel producer worldwide), **Sao Carlos University Hospital** (blood donor clinic department).

- Reviewed and developed a range of tools for participatory design, pilot testing them in industrial contexts.

Conceptual Project and Facilities Master Plan of a beverage company 2014

Industry Partner: **Leao AB** (Brazil. Beverage company subsidiary of Coca-Cola).

- Collected data on-site, including running interviews with company employees.
- Created 3D models and simulation in a game engine to support facilities layout design and discussion.

Ergonomics' program development and training for an aircraft company 2013

Industry Partner: **Embraer** (Brazil. 3rd largest aircraft maker in the world).

- Assisted the development of an ergonomics protocol for aircraft design.
- Hosted training sessions for the company engineers on the protocol tools and methods.

LEADERSHIP AND OUTREACH ACTIVITIES

- Creativity Special Interest Group (SIG), Clare Hall College** 2023 - present
- Creator and convenor of the Clare Hall Creativity SIG in Cambridge.
 - Responsible for organising the programme and promoting interdisciplinary discussion about creativity with researchers and students in different fields.
- Games & Technology Group, Oxford Internet Institute, Oxford University** 2023 - present
- Active member of the G&T group, discussing topics related to game studies and game research.
 - Collaborated with Oxford researchers on funding proposals, event planning and organisation.
- Engineering Our Tomorrow, Cambridge Science Centre** 2022 - 2023
- Volunteer at a science dissemination and outreach project, funded by the Royal Academy of Engineering.
 - Developed interactive activities on energy transition for children to learn about engineering.
- Mentoring Prospective Graduate Students, Brazilian Student Association - BRASA** 2022 - 2023
- Mentoring Prospective Graduate Students, African Society of Cambridge University - ASCU** 2022 - 2023
- Mentor to Brazilian and African students who want to apply for graduate programs abroad.
 - Reviewed mentees' application materials, shared strategic insights on the application process and writing routine.
- COVID-19 Relief Network, Federal University of Sao Carlos** 2020
- Designed and assisted the production and distribution of personal protective equipment for healthcare workers.
 - Over 17,000 face-shields were produced and distributed across 75 cities in the region.
 - Resulted in a patent application for a device and method for tracheal tube occlusion support.
- Academic Writing Group, Federal University of Sao Carlos** 2020
- Created and led an academic writing support group at the Department of Industrial Engineering.
 - Implemented initiatives for time management (e.g., Pomodoro technique) and writing support.
 - Promoted discussions on research planning and design, reaching both masters and PhD students and academics.
- Events' Organisation**
- Clare Hall Research Day 2023, Cambridge, UK. **Executive committee.** 2023
 - Clare Hall Three Slide Talks 2023 Series, Cambridge, UK. **Series chair.** 2023
 - 48th ACE & 12th ODAM Joint Conference, Banff, Canada. **On-site support staff.** 2017

SERVICE

- Manuscript Peer Review for Scientific Journals and Conferences** 2022 - 2024
- International Journal of Design Creativity and Innovation
 - Ergonomics
 - International Ergonomics Association Triennial Congress (IEA 2024)
 - Creativity & Cognition (C&C 2023)
- Academic Societies Membership**
- Design Society 2022 - 2024
 - Design Research Society 2021 - 2022
- Student Representative**
- Clare Hall College, Graduate Student Body, University of Cambridge 2022 - 2023
 - Council of the Centre for Exact Sciences and Technology, UFSCar 2018

LANGUAGES AND OTHER SKILLS

Languages

- Portuguese & English: Fluent.
- Spanish: Advanced.
- French: Basic.

Technical skills

- 2D/3D modelling software - AutoCAD, Inventor, 3D Studio Max, Blender.
- Game engines - Unreal Engine and Unity.
- Graphic design and video editing - Adobe Illustrator, Photoshop and Premiere Pro.
- Python - pandas, numpy, scikit-learn, matplotlib, plotly, dash.
- VBA scripting language - macros, custom functions, user forms, custom interfaces with xml.
- Microsoft Office and Google Suite.

REFERENCES

Nathan Crilly (current research supervisor)

Professor of Design, PhD.
Department of Engineering
University of Cambridge, United Kingdom
Email: nc266@cam.ac.uk

Bernd Muschard (past research supervisor and current collaborator)

Research Engineer, Dr.-Ing
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Technische Universität Berlin, TUB, Germany
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Daniel Braatz (past research supervisor)

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