

Elena Miu | Curriculum Vitae

Department of Archaeology and Heritage Studies, Aarhus University
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Academic Appointments

2023 – present **Postdoctoral Research Fellow**, PIOIP Play Object Play project, Aarhus University, Denmark
With Prof. Felix Riede

2020 – 2023 **Postdoctoral Research Fellow**, BirthRites Group, Max Planck Institute for Evolutionary Anthropology, BirthRites Group, Germany
With Dr. Heidi Colleran

2018 – 2020 **Postdoctoral Research Associate**, School of Human Evolution and Social Change, Arizona State University, USA
With Dr. Thomas Morgan

2017 **Postdoctoral Research Assistant**, School of Biology, University of St Andrews, UK
With Dr. Luke Rendell and Prof. Kevin Lala

Education

07.02.2017 **PhD Biology**, University of St Andrews, UK (supervisor Dr. Luke Rendell and Prof. Kevin Lala)

03.07.2013 **MSc Evolution of Language and Cognition**, University of Edinburgh, UK

25.06.2012 **MA Linguistics and Artificial Intelligence**, University of Edinburgh, UK

Academic Outputs

Peer reviewed publications:

Miu, E., Andersen, M.M., Lew-Levis, S., Riede, F. The relationship between childhood exploration and population-level innovation in cultural evolution. *Proceedings of the Royal Society B*. (in press).

Miu, E., Vestergaard Meyer, M., Riede, F. Peer cultures in long-term cultural evolution. *Behavioural and Brain Sciences*. (in press).

Miu, E., Colleran, H. (2025) Female friendship and the cultural transmission of low-fertility values: evidence from rural Poland. *PNAS Nexus* 4(5): pgaf113.

Miu, E., Kline, M., Pretelli, I., Rawlings, B., Liebal, K., Lancy, D. F., ... & Kärtner, J. (2025) Research methods: A collage. In *A Field Guide to Cross-Cultural Research on Childhood Learning: Theoretical, Methodological, Practical, and Ethical Considerations for an Interdisciplinary Field* (pp. 111-162). Open Book Publishers.

Kaaronen, R.O., Walsh, M.J., Henrich, A.K., Wisher, I., **Miu, E.**, Manninen, M.A., Eronen, J.T., Riede, F. (2024) A global cross-cultural analysis of string figures reveals evidence of deep transmission and innovation. *Journal of the Royal Society Interface* 21(221), p.20240673.

Miu, E.*, Rendell, L.*., Bowles, S., Boyd, R., Cownden, D., Enquist, M., Eriksson, K., Feldman, M.W., Lillicrap, T., McElreath, R., Murray, S., Ounsley, J., Lala, K.N. (2024) The refinement paradox and cumulative cultural evolution: complex products of collective improvement favor conformist outcomes, blind copying, and hyper-credulity. *PLOS Computational Biology* 20(9): e1012436

Miu, E., Boyd, R., Richerson, P., & Morgan, T. (2020). A theory limited in scope and evidence. *Behavioral and Brain Sciences* 43:E171.

Miu, E., & Morgan, T. (2020) Cultural adaptation is maximised when intelligent individuals rarely think for themselves. *Evolutionary Human Sciences* 2:E43.

Miu, E., Gulley, N., Laland, K., Rendell, L. (2020) Flexible learning, rather than inveterate innovation or copying, drives cumulative knowledge gain. *Science Advances* 6(23):eaaz0286.

Miu, E., Gulley, N., Laland, K. Rendell, L. (2018) Innovation and cumulative culture through tweaks and leaps in online programming contests. *Nature Communications* 9:2321.

Not peer reviewed:

Miu, E., Youngblood, M. Age and innovation in electronic music. (in prep).

Miu, E., Andersen, M.M., Lew-Levis, S., Riede, F. Modelling the role of childhood play for cultural diversity under environmental change. (in prep).

Miu, E., Andersen, M.M., Badescu, I., Boecks, C., Cenni, C., Lew-Levy, S., Lepauldier, E., McKerracher, L., Leca, J.B., Milks, A., Morgan, T., Pope-Caldwell, S., Rawlings, B., Vestergaard Meyer, M., Wells, K. Riede, F. Play is not an engine of innovation. (in prep).

Hillemann, F., **Miu, E.**, Pretelli, I., Kroupin, I., Lew-Levy, S. A cultural evolutionary approach to organising purposeful scientific meetings. (in prep).

Vermillet, A.Q., **Miu, E.**, Parkvall, M., Daval-Markussen, A. How does demography impact language change? A population ecological approach to the emergence of creoles. (in prep).

Youngblood, M., Mudd, K., Anglada-Tort, M., Doboli, A., Doboli, S., Jacoby, N., Jones, C., **Miu, E.**, Omigie, D., Ruiz, L., Sobchuk, O., Tchernichovski, O., Schedel, M. Collective creativity in hybrid societies. (in prep).

*joint first authorship

Project management, Leadership, and Mentorship

Leadership

2025 Object play, tool use innovation, and adaptation in humans and beyond, Aarhus Institute of Advanced Studies, Aarhus University, Denmark – interdisciplinary workshop main organiser

2024 Human Behaviour and Evolution Society (HBES), Aarhus University, Denmark – international conference main organiser, head of the scientific committee

2024 European Association of Archaeologists (EAA), Rome, Italy – “Evolutionary Approaches to Archaeological Questions” session co-organiser

2023 – present PIOIP Play Object Play monthly meeting organiser, Aarhus University, Denmark.

2022 Cultural Evolution Society, Aarhus, Denmark – “Biological social sciences: cultural-physiological-cognitive interactions in living populations” session co-organiser

2021 European Human Behaviour and Evolution Association, Leipzig, Germany – “Mental health in academia” workshop organiser

2021 – 2023 PostdocNet Internal Student Representative, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

2018 Cumulative Culture Discussion Group, Santa Fe Institute, USA – co-organiser

2016 Young Social Learning Researchers Organisation, Manchester Winter Workshop, UK – organising committee

Editing and reviewing

2022 – present Guest editor for Humanities & Social Sciences Communications journal, Cultural Evolution collection

2024 Reviewer for travel awards for the European Human Behaviour and Evolution Association conference

2015 – present Reviewer: Nature Communications, Cognitive Science, Evolution and Human Behavior, Scientific Reports, Proc B, Human Nature, Behavioral Ecology and Sociobiology, Palgrave Communications, Plos One.

Public dissemination

2020 Innovation relies on imitation, Alison Gopnik, Wall Street Journal

2014 Science communication with Animal Cultures Exhibit, Edinburgh Zoo and BBSRC Bioscience Festival, London

2010-2012 Robogals (international student-run organisation for supporting and mentoring young women in STEM), Secretary

Grants and Awards

2025 Carlsberg Conference Grant (80,000 DKK)

2016 Sir Ken Murray travel fund, School of Biology, University of St Andrews

2015 Honourable mention at the European Human Behaviour Evolution Association

Teaching

Aarhus University

2025 Social and Cultural Dynamics, 4th semester course, guest lecturer on Cultural Evolution

2023 – 2026 Archaeological data analysis and presentation, Masters-level course on statistics
University of St Andrews

2014 – 2017 BL2-Skills – Statistics for biology, 2nd year course
BL3320 – Statistics for biology, 3rd year course

Invited Talks

2025 Collective Creativity Workshop, Stony Brook University, USA – “Play, creativity, innovation”

2024 The Developmental Evolutionary Ecological Psychology lab meeting, University of Utrecht, The Netherlands – “Modelling the role of childhood play as a driver of innovation in cultural evolution”

2022 Evolutionary Demography Group Seminar Series, London School of Hygiene and Tropical Medicine, UK – “Female friendship and the cultural transmission of low fertility norms”

2022 Early Career Social Learning Researchers (ESLR) summer workshop, Amsterdam, Netherlands – “Modelling the evolution of social transmission”

2022 The Computational Summer school on Modeling Social and collective behavior (COSMOS), Konstanz, Germany – “Cumulative cultural evolution: the evolution of technology”

2021 Penn Symposium on Tools, Beliefs, and Behaviors, at Social, Cultural Evolution Working Group, University of Pennsylvania, USA – “Cumulative cultural evolution: the evolution of technology”

2021 Durham Cultural Evolution Research Centre, Durham University, UK – “The cultural evolution of culture: models of cumulative cultural evolution”

2021 Brunel University Centre for Culture and Evolution journal club, UK – “Flexible learning, rather than inveterate innovation or copying, drives cumulative knowledge gain”

2020 Center for Science of Science and Innovation Research Talk, Kellogg School of Management, Northwestern University, USA – “Innovation and copying drive cumulative knowledge gain in online programming contests”

2019 Conference on Cultural Evolution and Social Norms, The Institute for Mathematical Behavioral Sciences, UC Irvine, California, USA – “Models of cumulative cultural evolution”

2017 Social Learning & Cultural Evolution Workshop, Keele University, UK – “Cumulative culture and cultural diversity: insights from the Social Learning Strategies Tournament II”

Conference talks

2024 European Human Behaviour and Evolution Association – University of Montpellier – “Modelling the role of childhood play as a driver of innovation in cultural evolution”

2024 Human Behaviour and Evolution Society 2024 – Aarhus University – “Modelling the role of childhood play as a driver of innovation in cultural evolution”

2024 Cultural Evolution Society Conference – Durham University – “Modelling the role of childhood play as a driver of innovation in cultural evolution”

2022 Cultural Evolution Society Conference – Aarhus University 2022 – “Female friendship and the cultural evolution of low-fertility norms”

2021 Cultural Evolution Society Conference – Hokkaidai University, Japan (online) – “Female friendship and the demographic transition”

2019 Cumulative Culture Discussion Group – Santa Fe Institute – “A model of recombination in cumulative cultural evolution”

2018 Cultural Evolution Society Conference – Arizona State University – “A model of recombination in cumulative culture”

2018 Cumulative Culture Discussion Group – Santa Fe Institute – “The usefulness of the concept of cumulative culture”

2017 European Human Behaviour and Evolution Association 2017 – Ecole Normale Supérieure – “The role of recombination in cumulative culture”

2017 Behavioural Discussion Group - University of St Andrews – “Behavioural homogeneity without conformity in cumulative culture”

2016 European Human Behaviour and Evolution Association 2016 – London School of Hygiene and Tropical Medicine – “Cumulative culture and cultural diversity: insights from the Social Learning Strategies Tournament II”

2016 Biology Postgraduate Conference – University of St Andrews – “Emergent conformity in cumulative culture”

2015 CogCom – University of Vienna - “Emergent conformity in cumulative culture”

2015 European Human Behaviour and Evolution Association 2015 – University of Helsinki – “Emergent conformity in cumulative culture”

Skills

Programming skills: Python; R; Matlab; C++

Statistics: Extensive experience running multi-level models both in a frequentist and Bayesian framework in JAGS and Stan; Completed ‘Statistical rethinking’ – online course by Richard McElreath; ‘Introduction to Bayesian Statistics with R’ - week-long course organised by Highland Statistics Ltd, Alain Zuur and Elena Ieno

Language skills: Romanian – Native level; English – Professional level; French – Advanced level