

# Elena Miu | Curriculum Vitae

Department of Archaeology and Heritage Studies, Aarhus University  
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## Academic Appointments

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- 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

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- 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

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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

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### Leadership

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| 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

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| 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

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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

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	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

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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

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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 – Hokkudai 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

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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