

Joe Roe

I am a computational archaeologist specialising in Southwest Asian prehistory. I use data science to study [human ecology and cultural evolution in past societies](#); develop [research software](#) and [open datasets](#) for reproducible quantitative analysis in archaeology; and direct [field surveys](#) using digital recording and geoinformatics technology.

View this CV online with links at <https://joeroe.io/cv>

Education

- 2017
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2013
- **Postgraduate studies**
UCL Institute of Archaeology 📍 University College London
 - Computational modelling of prehistoric human ecology in the Southern Levant
 - Part of the [Prehistoric Hunting Strategies in Jordan project](#)
 - Supervisors: [Prof. Louise Martin](#), [Prof. Andrew Bevan](#), [Dr. Andrew Garrard](#)
 - **MA Archaeology (Distinction)**
UCL Institute of Archaeology 📍 University College London
 - Dissertation: *Cultural phylogeny of kurgan burial mounds in the west Eurasian steppe*
 - Supervisor: [Prof. Stephen Shennan](#)
 - **BA Anthropology & Archaeology (1st class hon.)**
Departments of Anthropology & Archaeology 📍 Durham University
 - Dissertation: *Spatial analysis of intra-site surface collection data from a Cucuteni-Tripolye mega-site*
 - Supervisor: [Prof. John Chapman](#)
 - **Secondary education**
Woodkirk High School 📍 Leeds
- 2013
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2012
- 2011
|
2008
- 2008
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2001

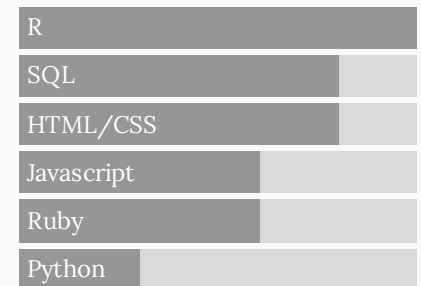
Academic appointments

- current
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2021
- **Research assistant (Projektmitarbeiter)**
[Institute of Archaeological Sciences](#) 📍 University of Bern
 - Lead developer of [XRONOS](#), an open repository for chronometric data
 - PIs: [Dr. Martin Hinz](#), [Prof. Dr. Albert Hafner](#)

Contact

- ✉ joeroe@hey.com
- ☎ +45 60 56 37 63
- 🌐 joeroe.io
- ☎ 0000-0002-1011-1244
- 🎓 [Google Scholar](#)
- 🐙 github.com/joeroe
- 📧 joeroe@archaeo.social
- 🌐 User: Joe Roe

Programming



2020
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2017

● Research assistant (Videnskabelig assistent)

Department of Cross-Cultural and Regional Studies

📍 University of Copenhagen

- Responsibility for archaeological survey and spatial analysis components of major field projects in Iran and Jordan
- Developed databases and software interfaces for the projects' research data
- PIs: [Dr. Tobias Richter](#),



Publications

2023

● Batist, Z. & **Roe, J.**, open-archaeo: a resource for documenting archaeological software development practices. *Journal of Open Archaeology Data* 11: 9. [doi:10.5334/joad.111](https://doi.org/10.5334/joad.111)

Arranz-Otaegui, A. & **Roe, J.**, Revisiting the concept of the 'Neolithic Founder Crops' in southwest Asia. *Vegetation History and Archaeobotany* NA. [doi:10.1007/s00334-023-00917-1](https://doi.org/10.1007/s00334-023-00917-1)

2022

● Arranz-Otaegui, A., Pedersen, P. N., Schmidt, A. F., Jörgensen-Lindahl, A., **Roe, J.**, Villemoes, J., Pantos, G. A., Killackey, K., Identifying the *chaîne opératoire* of club-rush (*Bolboschoenus glaucus* [Lam.] S.G.Sm) tuber exploitation during the Early Natufian in the Black Desert (northeastern Jordan). *Journal of Archaeological Science: Reports* 47. [doi:10.1016/j.jasrep.2022.103677](https://doi.org/10.1016/j.jasrep.2022.103677)

Jones, M., Richter, T., Rollefson, G., Rowan, Y., **Roe, J.**, Toms, P., Wasse, A., Ikram, H., Williams, M., AlShdaifat, A., Pedersen, P. N., & Esaid, W., The palaeoenvironmental potential of the eastern Jordanian desert basins (Qe'an). *Quaternary International* 635: 72-82. [doi:10.1016/j.quaint.2021.06.023](https://doi.org/10.1016/j.quaint.2021.06.023)

2021

● Richter, T., Darabi, H., Alibaigi, S., Arranz-Otaegui, A., Bangsgaard, P., Khosravi, S., Maher, L., Mortensen, P., Pedersen, P., **Roe, J.**, & Yeomans, L., The formation of Early Neolithic Communities in the Central Zagros: an 11,500 year old communal structure at Asiab. *Oxford Journal of Archaeology* 40 (1): 2-22. [doi:10.1111/ojoa.12213](https://doi.org/10.1111/ojoa.12213)

2020

● Khosravi, S., Pedersen, P. N., Alibaigi, S., **Roe, J.**, Heidary Dastenaeei, M., Miladi, B., Darabi, H., Richter, T., & Mortensen, P., Archaeological Landscape of Razavar Valley in the Neolithic Period: the survey of the 8th-6th millennium BC in the north of Kermanshah Province. *Pazhoheshha-ye Bastan shenasi Iran* 26. [doi:10.22084/NBSH.2020.21133.2094](https://doi.org/10.22084/NBSH.2020.21133.2094)

Nebbia, M., & **Roe, J.**, Landscape Studies. In Gaydarska, B., *Early Urbanism in Europe: The Trypillia Mega-Sites of the Ukrainian Forest-Steppe*. De Gruyter, pp. 60-107. [doi:10.1515/9783110664959-007](https://doi.org/10.1515/9783110664959-007)

Martin, L., & **Roe, J.**, The Kheshiya Cattle Skull Ring: Zooarchaeological Analyses. In McCorriston, J., & Harrower, M. J., *Landscape History of Hadramawt: The Roots of Agriculture in Southern Arabia (RASA) Project, 1998-2008*. Cotsen Institute of Archaeology Press, pp. 275-348. [doi:10.2307/j.ctvzgb8n3.20](https://doi.org/10.2307/j.ctvzgb8n3.20)

My publications reflect a number of ongoing collaborations with domain-specialist colleagues, bringing a data science perspective to addressing multidisciplinary research questions in prehistory.

- 2019 ● Henton, E., **Roe, J.**, Martin, L., Garrard, A., Boles, O., Lewis, J., Thirlwall, M., & Jourdon, A-L., Epipalaeolithic and Neolithic gazelle hunting in the Badia of north-east Jordan. Reconstruction of seasonal movements of herds by stable isotope and dental microwear analyses. *Levant* 50 (2): 127-172. [doi:10.1080/00758914.2019.1598764](https://doi.org/10.1080/00758914.2019.1598764)
- Jones et al., 20,000 years of societal vulnerability and adaptation to climate change in southwest Asia. *WIREs Water* 6 (2): e1330. [doi:10.1002/wat2.1330](https://doi.org/10.1002/wat2.1330)
- 2018 ● Arranz-Otaegui, A., González Carretero, L., **Roe, J.**, & Richter, T., “Founder crops” v. wild plants: Assessing the plant-based diet of the last hunter-gatherers in southwest Asia. *Quaternary Science Reviews* 186: 263–283. [doi:10.1016/j.quascirev.2018.02.011](https://doi.org/10.1016/j.quascirev.2018.02.011)
- 2016 ● Martin, L., Edwards, Y., **Roe, J.**, & Garrard, A., Faunal turnover in the Azraq Basin, eastern Jordan 28,000 to 9,000 cal BP, signalling climate change and human impact. *Quaternary Research* 86 (2): 200–219. [doi:10.1016/j.yqres.2016.07.001](https://doi.org/10.1016/j.yqres.2016.07.001)

Publications (non-peer-reviewed)

- 2023 ● **Roe, J.**, Peer Review Report For: Inglämnlagare: a tool for restructuring Swedish HER record site data for statistical analysis [version 2; peer review: 3 approved]. *F1000Research* 11 (1370). [doi:10.5256/f1000research.157510.r222117](https://doi.org/10.5256/f1000research.157510.r222117)
- 2016 ● **Roe, J.**, PIA at 25: A Retrospective. *Papers from the Institute of Archaeology* 25 (2): p.Art. 16. [doi:10.5334/pia.517](https://doi.org/10.5334/pia.517)
- 2015 ● Allentuck, A., Martin, L., & **Roe, J.**, Refuse Disposal in the Early Epipalaeolithic? Preliminary Zooarchaeological Evidence from Kharaneh IV, Eastern Jordan. *Bulletin of the Council for British Research in the Levant* 10: 67–69. [doi:10.1179/1752726015Z.00000000034](https://doi.org/10.1179/1752726015Z.00000000034)
- 2014 ● **Roe, J.**, Review of *Green Arabia: Human Prehistory at the Crossroads of Continents*. *Papers from the Institute of Archaeology* 24 (1). [doi:10.5334/pia.458](https://doi.org/10.5334/pia.458)

Conference presentations

- 2023 ● Hinz, M. & **Roe, J.**, XRONOS: a global open repository enhancing reproducible research with chronometric data. Presented at Computer Applications & Quantitative Methods in Archaeology (CAA), Amsterdam.
- Roe, J.** & Hinz, M., XRONOS: open chronometric data from archive to infrastructure. Presented at Digital Archaeology Bern 2023.
- Roe, J.**, Modelling the range of wild plants and crop progenitors in the Late Epipalaeolithic–Early Neolithic Levant. Presented at Digital Archaeology Bern – Ancient West Asia.
- Roe, J.**, More than just porridge: old materialism and the macroarchaeology of the Neolithic Revolution. Presented at 13th International Congress on the Archaeology of the Ancient Near East, Copenhagen.

See my homepage for [abstracts](#) and [posters](#).

2022

● Hinz, M. & Roe, J., *Zoom and Enhance: high-resolution reconstruction of macro-scale processes with Bayesian hierarchical models*. Presented at European Association of Archaeologists (EAA) Annual Meeting, Budapest, 31 August – 3 September.

Roe, J., *Are we what we eat? The Southwest Asian 'Neolithic Revolution' as macroarchaeological theory*. Presented at the European Association of Archaeologists (EAA) Annual Meeting, Budapest, 31 August – 3 September.

Roe, J. & Hinz, M., *XRONOS: challenges in building a global open repository for chronometric data*. Presented at the European Association of Archaeologists (EAA) Annual Meeting, Budapest, 31 August – 3 September.

2021

● Roe, J., *Out with the new, in with the old: recent advances in palaeoecological modelling with open data*. Presented at the Association for Environmental Archaeology Spring Meeting 2021: Open Science Practices in Environmental Archaeology, Oxford.

Roe, J., *A revised radiocarbon chronology of Ganj Dareh*. Presented at the 53rd Annual Meeting of the Canadian Archaeological Association, 'Ganj Dareh Then and Now: Integrating Past and Current Research'.

Roe, J., *Nonequilibrium dynamics in models of human palaeoecology*. Presented at Computer Applications & Quantitative Methods in Archaeology (CAA), Limassol (Virtual).

Batist, Z. & Roe, J., *Open archaeology: a survey of collaborative software engineering in archaeological research*. Presented at Computer Applications & Quantitative Methods in Archaeology (CAA), Limassol (Virtual).

Roe, J., *Computational models of chronology and regional settlement in the Epipalaeolithic–Neolithic Zagros (20000–6000 BP)*. Presented at the 'Revisiting the Hilly Flanks: the Epipalaeolithic and Neolithic periods in the eastern Fertile Crescent' conference, Copenhagen.

Pedersen, P. N., Roe, J., & Richter, T., *Free foragers? A case for transient social inequality at Epipalaeolithic Shubayqa, eastern Jordan*. Presented at the 12th International Congress on the Archaeology of the Ancient Near East, Bologna.

Roe, J., *On uncertain ground: modelling human palaeoecology in the Azraq basin, eastern Jordan, 24,000–8,000 BP*. Presented at the 12th International Congress on the Archaeology of the Ancient Near East, Bologna.

- 2019 ● **Roe, J.**, ***Gorram shiny!** An accessible interface for reproducible landscape archaeology with R and `fieldwalker`. Presented at Computer Applications & Quantitative Methods in Archaeology (CAA), Kraków.
- Richter, T., Arranz Otaegui, A., Jones, M., **Roe, J.**, & Yeomans, L., *Environmental Crisis and Societal Collapse: Was the Younger Dryas a significant factor in triggering the transition from the Palaeolithic to the Neolithic in the Levant?*. Presented at 'Culture in Crisis: Flows of Peoples, Artifacts and Ideas', the 14th International Conference on the History and Archaeology of Jordan (ICHAJ 14), Florence.
- Arranz-Otaegui, A., **Roe, J.**, Pantos, G. A., Santana, J., Araus-Cabrera, J. L., Le Roux, P., & Richter, T., *Locally available or imported? Identifying the provenance of Natufian plant food and fuel resources at Shubayqa 1 (northeastern Jordan)*. Presented at the 18th conference of the International Workgroup for Palaeoethnobotany (IWGP), Lecce.
- Buffington, A., Olson, K., **Roe, J.**, Al Kathiri, A. A., McCorriston, J., *Over Mountains and Through Woods: survey results and preliminary spatial analysis of the 2018 field season of the Ancient Socio-Ecological Systems in Oman (ASOM) project*. Presented at the 53rd Seminar for Arabian Studies, Leiden.
- Roe, J.**, & Richter, T., *Mutable mobilities: 15,000 years of nomadic settlement in the Qa' Shubayqa, eastern Jordan*. Presented at the 53rd Seminar for Arabian Studies, Leiden.
- Pantos, G. A., & **Roe, J.**, *A halfway house: open source tools for tidy photographic and 3D data management between the field and the archive*. Presented at Computer Applications & Quantitative Methods in Archaeology (CAA), Kraków.
- Roe, J.**, *The Q Continuum: open source GIS tools for paperless field survey*. Presented at Computer Applications & Quantitative Methods in Archaeology (CAA), Kraków.
- Roe, J.**, Pedersen, P. N., Khosravi, S., *A survey of early prehistoric sites in the Razavar Valley (Kermanshah, Iran)*. Presented at the British Association for Near Eastern Archaeology (BANEA) annual conference, Liverpool.
- 2018 ● **Roe, J.**, *Is there anything R can't do?*. Presented at the Computer Applications and Quantitative Methods in Archaeology (CAA) conference, Tübingen.
- Roe, J.**, *fieldwalker: an R package for spatial sampling and field survey simulation*. Presented at the Landscape Archaeology Conference (LAC), Newcastle & Durham.
- Richter, T., Arranz-Otaegui, A., Boaretto, E., Jones, M., **Roe, J.**, & Yeomans, L., *Reconstructing Environmental Impacts on Late Pleistocene and Early Holocene Societies in the Marginal Zone of the southern Levant: A Case Study from Shubayqa*. Presented at the XVIII UISPP World Congress, Paris.
- Roe, J.**, *The Zagros in Prehistory: geography, chronology, demography*. Presented at the British Association for Near Eastern Archaeology (BANEA) annual conference, Liverpool, 2019, and the KU Archaeology Day.
- 2017 ● Martin, L. & **Roe, J.**, *The Complexities of Mammalian Body Size Change in Late Pleistocene to Holocene Southern Levant, 35 years on*. Presented at 'From the Mediterranean to the Atlantic: themes in European zooarchaeology', Museum of Natural History and Science, Lisbon.
- 2016 ● **Roe, J.**, *A greener model of palaeoenvironments in the eastern Levant*. Presented at Unravelling the Palaeolithic, Southampton.










- 2015 ● Allentuck, A., Martin, L., **Roe, J.**, *Domestic maintenance practices in the Early Epipalaeolithic of the Jordanian steppe*. Presented at the 12th International Symposium of the ICAZ Archaeozoology of Southwest Asia and Adjacent Areas Working Group (ASWA), Groningen.
- Roe, J.** & Martin, L., *Open season: modelling prehistoric wildlife dynamics in Epipalaeolithic and Neolithic Jordan*. Presented at the British Association for Near Eastern Archaeology (BANE) annual conference, London.
- Allentuck, A., **Roe, J.**, Martin, L., Macdonald, D., & Maher, L., *Zooarchaeological evidence for domestic maintenance in the Early Epipalaeolithic*. Presented at the British Association for Near Eastern Archaeology (BANE) annual conference, London.

Software & datasets


- 2023 ● [rpaleoclim: R interface for paleoclimate data](#)
- 2023 ● [open-archaeo: a list of open source archaeological software and resources](#)
Zenodo
- 2022 ● [era: R package for years with an era](#)
- 2020 ● [c14: R package for tidy radiocarbon data](#)
- 2020 ● [rintchron: R interface to IntChron](#)
- 2020 ● [stratigraphr: R package for archaeological stratigraphy and chronological sequences](#)
- 2020 ● [evoarchdata: datasets from studies of cultural evolution in archaeology](#)
- 2019 ● [Data from Uerpman 1987, The Ancient Distribution of Ungulate Mammals in the Middle East, TAVO A27](#)
Zenodo
- 2019 ● [Trypillia mega-sites of the Ukraine](#)
Archaeology Data Service
- 2018 ● [fieldwalkr: R package for spatial sampling and survey simulation](#)

I am also an active contributor to a number of [other open source software and open data projects](#).

Field projects

- 2019 ● **Field director**
Shubayqa Archaeological Project  Jordan
- 2018 ● **Field archaeologist**
Ancient Socioecological Systems in Oman (ASOM) project  Oman
- 2018 ● **Supervisor**
Razavar Valley Survey  Iran
- 2018 |
2015 ● **Field archaeologist & supervisor**
Shubayqa Archaeological Project  Jordan
- 2015 ● **Field archaeologist**
Kharaneh IV Project  Jordan
- 2014 |
2012 ● **Field archaeologist & supervisor**
Tripillia Mega-Sites Project  Ukraine
- 2012 ● **Supervisor**
Mirkovo Project  Bulgaria
- 2009 ● **Trainee**
Tripillia Mega-Sites Project  Ukraine
- 2007 ● **Trainee**
York Archaeological Trust  England

Grants & scholarships

- 2022 ● **Young Researchers' Promotion Fund**
And other internal funds  University of Bern
 - 7300 CHF to support conference organisation, 'Digital Archaeology Bern 2023'
- 2019 ● **Project grant**
Danmarks Frie Forskningsfond
 - "Connecting the Dots: Reconfiguring the Indo-European family tree"
 - Named applicant. PI: Dr. Thomas Olander

In the field, I specialise in site prospection, intrasite survey, digital recording and GIS.

I was responsible for the survey component Shubayqa Archaeological Project (2018–2019), including designing the research strategy, planning and obtaining permits, and directing teams on the ground.

- 2018 ● **Fieldwork grant**
Det Danske Institut i Damaskus
 - 115,000 DKK to support archaeological fieldwork in eastern Jordan (2019)
 - Co-applicant with Dr. Tobias Richter
- 2018 ● **Fieldwork grant**
H. P. Hjerl Hansen Mindefondet for Dansk Palæstinaforskning
 - 50,000 DKK to support archaeological fieldwork in eastern Jordan (2019)
 - Co-applicant with Dr. Tobias Richter
- 2016 ● **Project grant**
C. L. Davids Fond og Samling
 - “Tracking Cultural and Environmental Change: the Epipalaeolithic and Neolithic in the Seimarreh Valley, central Zagros”
 - Named applicant. PIs: Prof. Peder Mortensen, Dr. Tobias Richter, Dr. Hojjat Darabi
- 2015 ● **Institute of Archaeology Award**
UCL Institute of Archaeology 📍 London
 - Individual grant (£1888) to participate in archaeological fieldwork in eastern Jordan
- 2014 ● **Research Students’ Conference Grant**
London Centre for the Ancient Near East (LCANE)
- 2013 ● **PhD Studentship**
Leverhulme Trust
 - Part of Research Project Grant RPG-2013-223
- 2012 ● **Research-preparation Masters Award**
Arts and Humanities Research Council

Teaching & public engagement

- current | 2022 ● **Course lecturer**
Institute of Archaeological Sciences 📍 University of Bern
 - Lead instructor on BA-/MA-level courses [GIS in Archaeology](#) and [Statistical Methods for Archaeological Data Analysis \(SMADA\)](#)
 - Recognised for “Excellence of Teaching” for SMADA 2023 (top 14% of courses in the Faculty of Humanities according to student satisfaction)
- 2023 | 2020 ● **Instructor**
“R for Archaeologists” winter school 📍 University of Pisa
 - For four years I have led an intensive [two-day workshop on data visualisation in R](#) for archaeologists

Promoting computational tools, and especially R, in archaeology has been a particular focus; I have experience in teaching at a range of levels, as well as informally mentoring students and colleagues.

2021
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2018

● Course lecturer

Department of Cross-Cultural and Regional Studies

📍 University of Copenhagen

- BA: “Practical Archaeology 1” (Arkæologisk praksis 1, [HNAB0100FU](#)), “Practical Archaeology 2” (Arkæologisk praksis 2, [HNAB0102EU](#)), “Science and Theory of Science” (Videnskabsteori, [HTOR0102FU](#))
- KA: “Theory and Method in Near Eastern Archaeology” ([HNAK0101EU](#)), “Environments and landscapes in the archaeological record of southwest Asia” ([HNAB0102FU](#)), “Neolithic to Early Urban Periods in the Near East” ([HNAK0102EU](#)), “Project-based course” ([HNAK0100FU](#))

2020

● Workshop organiser

Department of Cross-Cultural and Regional Studies

📍 University of Copenhagen

- Led an intensive two-day workshop on mobile GIS for linguistic field research

2016
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2015

● Postgraduate Teaching Assistant

UCL Institute of Archaeology

📍 University College London

- ARCL2028 Research & Presentation Skills

2016
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2014

● Tutor

[The Brilliant Club](#)

📍 Schools in London

- Designed and delivered a university-style tutorial course for primary and high school students

2015

● Student Volunteer

Maths and Archaeology workshop 📍 Petrie Museum of Egyptian Archaeology

- Outreach event for high school students organised by Dr. Alice Stevenson (Petrie Museum) and Dr. Luciano Rila (UCL Mathematics) and supported by the London Mathematical Society



Professional service

● Peer review

Journals

- *Journal of Open Source Software*: [#4335](#), [#5811](#)
- *Journal of Open Archaeology Data* (2)
- *PCI Archaeology*: [#333](#)
- *Advances in Archaeological Practice* (1)
- *Open Quaternary* (1)
- *PLOS ONE* (1)

2023
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2020

● **Member of Review College**

[CAA International](#)

- Reviews completed: CAA2024 (4)
- CAA2023 (3)
- CAA2022 (7)
- CAA2021 (8)
- CAA2020 (3)

2023

● **Conference organiser**

[Digital Archaeology Bern 2023](#)

📍 Bern

2021

● **Session organiser**

CAA2021

📍 Limassol

- S17: *Tools for the Revolution: developing packages for scientific programming in archaeology?*

2019

● **Session organiser**

CAA2019

📍 Kraków

- S06: *Recent advances in spatial statistics for archaeology*

2016
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2014

● **Senior Editor**

[Papers from the Institute of Archaeology](#)

📍 University College London

2016
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2014

● **Postgraduate Student Representative**

UCL Institute of Archaeology

📍 University College London

- Communications Committee
- Publications Committee

2014
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2013

● **Editorial Assistant**

[Papers from the Institute of Archaeology](#)

📍 University College London

2014

● **Conference organiser**

[Postgraduate Zooarchaeology Forum \(PZAF\)](#)

📍 London



Professional memberships

current
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2020

● [Society of Research Software Engineering](#)

current
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2014

● [Council for British Research in the Levant](#)

I am especially active in CAA International and its [special interest group for scientific scripting languages](#).

current
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2014

● **Computer Applications and Quantitative Methods in Archaeology International**

- Member of Review College (2018–present)
- Member of ‘Scientific Scripting Languages in Archaeology’ special interest group (2019–present)

■ **Workshop & seminar participation**

- 2019 ● “Scientific Scripting Languages in Archaeology” Roundtable
CAA2019 📍 Kraków
- 2018 ● “Connecting the Dots”
International Summer School 📍 Christian-Albrecht University of Kiel
• Development of the R package [moin: Modeling Interaction in Landscape Archaeology](#)
- 2017 ● Shubayqa Project Workshop
Workshop 📍 University of Copenhagen
- 2016 ● Near East Climate Workshop
Workshop 📍 University of Nottingham

📁 **Other employment & volunteering**

current
|
2010

- **Editor & administrator**
English Wikipedia
• Community-appointed administrator
• Elected member of the Arbitration Committee (2019–2020)
- 2018 ● **Gateway Advisor**
Kirklees Citizens Advice Bureau 📍 Dewsbury
- 2012 ● **Curatorial assistant**
Gradski Musej Vršac 📍 Vršac
- 2012 ● **Software engineer**
[TPP SystemOne](#) 📍 Leeds
• Front-end and data migration programming for a large clinical systems developer, working with Java and SQL

In my work with Wikipedia and other Wikimedia projects, I seek to promote engagement between academic archaeology and the free knowledge movement.