

Konstantinos Voudouris

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AT A GLANCE

AOS: AI Evaluation, Comparative Cognition, Philosophy of Cognitive Science

AOC: Reinforcement Learning, Developmental Psychology, Philosophy of Science (General), Phonological Theory, Open Science Methods, Large Language Models

ACADEMIC EXPERIENCE

Helmholtz Munich

Post-doctoral Researcher, Institute of Human-Centered AI.

Munich, Germany

Jul 2024–Present

- Full-time (100% FTE) post.
- PI: Prof. E. Schulz (Ludwig-Maximilians-Universität).
- Cognitive Evaluations of Large Language Models and Reinforcement Learning Agents; Computational Cognitive Science.

University of Cambridge

Post-doctoral Research Associate (Institute for Technology & Humanity)

Cambridge, UK

Mar 2024–Jul 2024

- Full-time (100% FTE) post.
- PIs: Prof. M. Halina (Cambridge), Prof. A. Barron (Macquarie), Prof. C. Klein (ANU).
- Computational modelling of major transitions in the evolution of neural systems.
- Including 2-week research visit to the Australian National University (Sponsor: Prof. C. Klein; *April, 2024*).

University of Cambridge

Research Assistant (Institute for Technology & Humanity)

Cambridge, UK

Nov 2023–Mar 2024

- Part-time (54.5% FTE) post.

University of Cambridge

PhD (Psychology and Philosophy of Science) - Passed with no corrections.

Cambridge, UK

Oct 2020–Mar 2024

- Supervisors: Prof. Lucy Cheke (Psychology), Prof. Marta Halina (Philosophy of Science).
- Examiners: Prof. Nicola Clayton (Cambridge), Prof. Cameron Buckner (Houston).
- Thesis: *From Animals to Algorithms: Comparative Psychology for the Study of Artificial Intelligence*.
- ESRC Fully-Funded Doctoral Training Programme.
- Student Fellow at the Leverhulme Centre for the Future of Intelligence, Cambridge, UK.

University of California, Berkeley

Visiting Scholar, Psychology Department

Berkeley, US

Jul-Sep 2023

- Visitor to the *Cognitive Development & Learning Lab* (PI: Prof. Alison Gopnik).
- Researching cognitive evaluation of AI systems using the tools of developmental psychology.
- £5000 received from competitive ESRC funding call.
- Invited talks to *Cognitive Development & Learning Lab* (PI: Prof. Alison Gopnik), *Experimental Cognition Lab* (PI: Prof. William Thompson), *Social Origins Lab* (PI: Prof. Jan Engelmann).

University of Cambridge

MPhil (Biological Sciences)

Cambridge, UK

Oct 2019–Sep 2020

- Thesis: *An Interdisciplinary Approach to the Associative-Cognitive Distinction* (Minor Corrections).
- Examiners: Nicola S. Clayton (University of Cambridge), Richard Moore (Warwick University).

University of Cambridge

MA (Cantab.) (Theoretical and Applied Linguistics)

Cambridge, UK

Oct 2016–Jun 2019

- Grade: Double First with Distinction (1st in cohort).
- Placed 2nd in cohort in Year 2, 5th in cohort in Year 1.

PEER-REVIEWED PUBLICATIONS (*FIRST AUTHOR)

- Voudouris, K.*** & Roe, N. (forthcoming) Metatheoretical Linguistics: A Philosopher's Guide. *Biolinguistics*.
- Voudouris, K.***, Farrar, B. G., Cheke, L. G., & Halina, M. (forthcoming) Morgan's Canon and the Associative-Cognitive Distinction Today: A Survey of Practitioners. *Journal of Comparative Psychology* ([Pre-Registration](#); [Pre-Print](#)).
- Voudouris, K.***, Liu, J. D., Siwinska, N., Schellaert, W., & Cheke, L. G. (2024). Investigating Object Permanence in Deep Reinforcement Learning Agents. In *Proceedings of the Annual Meeting of the Cognitive Science Society (Vol. 46)*.
- Voudouris, K.***, Cheke, L. G., & Halina, M. (2024). The Future is Computational Comparative Cognition. *Comparative Cognition & Behavior Reviews*, 19.
- Chan, A., ..., **Voudouris, K.**, Bhatt, U., Weller, A., Krueger, D. & Maharaj, T. (2023). Harms from Increasingly Agentic Algorithmic Systems. *ACM Conference on Fairness, Accountability, and Transparency 2023, Chicago, USA*. ([Pre-Print](#)).
- Voudouris, K.***, Donnelly, N., Rutar, D., Burnell, R., Burden, J., Hernández-Orallo, J., & Cheke, L. G. (2022). [Evaluating Object Permanence in Embodied Agents Using the Animal-AI Environment](#). *EBeM'22: Workshop on AI Evaluation Beyond Metrics, July 25, 2022, Vienna, Austria*.
- Burnell, R., Burden, J., Rutar, D., **Voudouris, K.**, Cheke, L. G., & Hernández-Orallo, J. (2022). [Not a Number: Identifying Instance Features for Capability-Oriented Evaluation](#). *IJCAI 2022 Vienna, Austria*.
- Voudouris, K.***, Crosby, M., Beyret, B., Hernández-Orallo, J., Shanahan, M., Halina, M., & Cheke, L. (2022). [Direct Human-AI Comparison in the Animal-AI Environment](#). *Frontiers in Psychology* 13:711821.
- Voudouris, K.** & COVID-19 Infection Survey Team (2021). Internal White Paper: Exploring Enduring SARS-CoV-2 Prevalence in the UK with the COVID-19 Infection Survey. *Office for National Statistics*.
- Farrar, B. G., **Voudouris, K.**, & Clayton, N. S. (2021). [Replications, comparisons, sampling and the problem of representativeness in animal cognition research](#). *Animal Behavior and Cognition*, 8(2), 273-295.

PAPERS UNDER REVIEW (*FIRST AUTHOR, †SENIOR AUTHOR)

- Voudouris, K.***, ..., & Cheke, L. G. The Animal-AI Environment: A Virtual Laboratory For Comparative Cognition and Artificial Intelligence Research. ([Pre-Print](#)).
- Slater, B., Mecattaf, M. G., Tešić, M., Prunty, J., Cheke, L. G., & **Voudouris, K.†** A little less conversation, a little more action, please: Investigating the physical common-sense of LLMs in a 3D embodied environment.
- Kipnis, A., **Voudouris, K.**, Buschoff Schulze, L., & Schulz, E. [metabench](#)—A sparse benchmark for reasoning and knowledge in large language models. ([Pre-Print](#)).
- Burden, J., **Voudouris, K.**, Burnell, R., Rutar, D., Cheke, L., & Hernández-Orallo, J. Inferring Capabilities From Task Performance with Bayesian Triangulation. ([Pre-Print](#)).
- Binz, M., ..., **Voudouris, K.**, ..., & Schulz, E. Centaur: A foundation model of human cognition. ([Pre-Print](#))
- Zhou, L., ..., **Voudouris, K.**, & Hernández-Orallo, J. Predictable Artificial Intelligence. ([Pre-Print](#)).
- Voudouris, K.***. Analogies and the Associative-Cognitive Distinction. (Based on Chapter 7 of [PhD Thesis](#))
- Voudouris, K.***. Cognitive Simplicity As An Idealisation. (Based on Chapter 8 of [PhD Thesis](#))
- Voudouris, K.*** Artificial Intelligence and the Risks of Unconceived Alternatives.

INVITED TALKS, WORKSHOPS, & SYMPOSIA

- Intuitive Physics in Animals and Machines** *Intuitive Physics Across Species and Development Workshop, December 17-18 2024, MPI for Evolutionary Anthropology, Leipzig, Germany.*
- Studying Artificial and Natural Intelligence with the Animal-AI Environment** *ARCANI Workshop, March 28 2024, Macquarie University, Sydney, Australia.*
- Cognitive Psychology for AI** (with Lucy Cheke) *CFI Retreat, January 18 2024, Cambridge, UK.*
- Measuring Complex Cognition** *Predictable AI, March 8 2023, Valencia, Spain.*
- Multiversing in Comparative Cognition.** *Comparative Cognition Conference, April 9 2022, Online.*
- A Perspective on the Associative-Cognitive Distinction in Comparative Psychology** *Kinds of Intelligence Workshop 3 November 2021, Online.*
- Oops, I Did It Again: A typology of phonological iterativity** (with Samuel Andersson, Bridget Samuels, & Bert Vaux) *Penn Linguistics Conference March 20 2021.*

WORKSHOPS, TUTORIALS, & SYMPOSIA

Co-organiser and co-presenter of the *Measurement Layouts for Capability-oriented AI Evaluation* Lab at AAAI-24, February 20 2024, Vancouver, Canada.

Co-organiser of the *Predictable AI* Conference, March 8 2023, Valencia, Spain.

RESEARCH GRANTS

Voudouris, K. Graham, C. R. (TAL, Cambridge), Luca Scimeca (Harvard), and Nathan Roll (UC Santa Barbara). Methods for evaluating short-cut learning in transformer-based ASR systems and its implications. (**£3,120**). *Cambridge Language Sciences Incubator Fund*.

Voudouris, K. Graham, C. R. (TAL, Cambridge), and Shinohara, Y. (Faculty of Science & Engineering, Waseda). AccentBench: A Framework for evaluating ASR generalisation from native to non-native speech. (**£2,960**). *Cambridge Language Sciences Incubator Fund*.

AUTHORED SOFTWARE PACKAGES & LIBRARIES

Alhas, I., Beyret, B., Crosby, M., Schellaert, W., & **Voudouris, K.** animalai: <https://pypi.org/project/animalai/>

CONTRIBUTIONS TO PEER REVIEW

Reviewer for *Synthese*, *Linguistics Vanguard*, *ICLR 2025*.

RESEARCH PROJECT SUPERVISION

Veterinary Medicine Project Supervisor Jan 2023 – Mar 2024
Royal (Dick) School of Veterinary Studies *Edinburgh, UK*

- Co-supervisor (with Dr L. Cheke) of fifth-(final-)year student research project on metacognition in animals and deep reinforcement learning.

Psychology & Behavioural Sciences Project Supervisor Oct 2022–Jun 2023
Department of Psychology *Cambridge, UK*

- Co-supervisor (with Dr L. Cheke) of third-(final-)year students doing dissertations on the human-AI comparison in the Animal-AI Environment on tests of object permanence.

Psychology & Behavioural Sciences Project Supervisor Oct 2021 – June 2022
Department of Psychology *Cambridge, UK*

- Co-supervisor (with Dr L. Cheke and Dr M. Bozić) of third-(final-)year students doing dissertations on the effects of Long COVID on Cognition, using structural equation models.

LECTURING

Co-Convener of *Intro to Machine Learning for Linguists* Oct 2021–Apr 2022
Faculty of Modern & Medieval Languages & Linguistics *Cambridge, UK*

- Wrote and developed exercises for group participants [here](#) in collaboration with Dr Calbert Graham (Cambridge).

Linguistics Lecturer September 2020 & September 2021
King's/Christ's/Caius Colleges *Cambridge, UK*

- Lecturer for Linguistics Bridging Programmes helping to bridge the gap for incoming first-years from under-privileged backgrounds. Syllabus [here](#).

SMALL-GROUP TEACHING

Philosophy of Cognitive Science Supervisor Jan 2023–Mar 2023
Department of History and Philosophy of Science *Cambridge, UK*

- Supervisor of Part II (third-year) students.
- Topics: Cognitive Science & Folk Psychology, Mental Representation, Consciousness, Self

Cognitive Neuroscience & Experimental Psychology Supervisor Oct 2022–Nov 2023
Department of Psychology *Cambridge, UK*

- Supervisor of Part IB (second-year) students.

- Topics: Vision, Audition, Attention, Cross-Model Integration, Learning & Memory, Consciousness, Language & The Brain, Reasoning & Decision-Making.
- Led practical classes on associative learning theory.

Comparative Cognition Supervisor

Oct 2022–Dec 2022

Department of Psychology

Cambridge, UK

- Supervisor of Part II (third-year) students.
- Topics include: Evolution of Intelligence, Tool-Use and Physical Understanding in animals, Spatial Navigation, Mental Time-Travel, Metacognition, Social Cognition.

Phonological Theory Supervisor

Oct 2020–Jun 2022

Faculty of Modern & Medieval Languages & Linguistics

Cambridge, UK

- Supervisor of second- and third-(final-)year students in Li7: Phonological Theory
- Topics: Foundations of Phonological Theory, Optimality Theory, Substance-Free Phonology, Neuro/Psycho-Phonology
- All my students in 2022 cohort achieved first-class marks (70+) in their final exams.

INDUSTRY & POLICY EXPERIENCE

Chief Technical Officer & Co-Founder

Jun 2021–December 2023

Cambridge BioNexus

Cambridge, UK

- Developing our flagship product: an automated biofinance (BioFAST) report for appraising biotech companies
- Start-up accepted into the Cambridge Judge Business School Start-Up Accelerator, Panacea Oncostars Incubator, King's E-Lab Accelerator, and Fitzelerate Accelerator

COVID-19 Infection Survey Analyst

Jul 2021–Oct 2021

Office for National Statistics

Newport, Wales

- Fully Accredited Researcher at the ONS (expiration: May 2026)
- [Led a project](#) investigating enduring prevalence of SARS-CoV-2 in UK sub-regions during the second wave of the UK coronavirus pandemic
- Contributed to [weekly COVID-19 bulletins](#) to inform the public and policymakers.

MEDIA & OUTREACH

Interview with Greg Goth for *Communications of the ACM* magazine on machine learning, comparative cognition, and the future of AI (Sept 2022). Article: [Is AI Becoming Sentient?](#)

Invited Podcast interview with Kyle Polich for the *DataSkeptic Podcast* (May 2024). Episode: [Evaluating AI Abilities](#)

CFI Blog post (June 2024). Article: [Cognitive Psychology for AI Evaluation](#)

TECHNICAL SKILLS

Programming Languages: R, Python, Julia, PowerShell, SQL, JavaScript

Developer Tools: Git, MySQL, PostgreSQL, Quarto

Natural Languages: English (native), Greek (C1), French (B2), German (B1), Turkish (A2).

AWARDS & NOMINATIONS

Student-Led Teaching Award Nomination. Nominated by my students in the year 2021-2022.

Office for National Statistics Recognition Scheme. Recognised by the ONS/UKSA/OSR Recognition Scheme for managing "an unexpected hazard to deliver at pace"

Sidney Allen Prize. Awarded £250 for achieving a First Class degree *with distinction* in Linguistics.

Provost's Prize. Awarded for contributions to college life during three-year undergraduate degree.

Undergraduate Scholarship. Awarded Undergraduate Scholarship at King's College for achieving first class results in each year of undergraduate degree.

EXTRA-CURRICULAR ACTIVITIES

Cambridge University Boat Club Welfare Officer	Sep 2022–Jul 2023
<ul style="list-style-type: none">• A point of contact to discuss concerns about selection, injury, and balancing workload and training.	
Caius Boat Club Coach	Sep 2022–Mar 2023
<ul style="list-style-type: none">• Paid coach developing a group of 20 scholar-athletes.	
King’s College Boat Club Secretary	Sep 2020–Jul 2023
<ul style="list-style-type: none">• Responsible for minute-taking and meeting planning.	
Cambridge University Boat Club	Oct 2020–Apr 2022
<ul style="list-style-type: none">• Pairs Varsity Race 2021, 2022	
KCSU Access Officer	Feb 2018–Feb 2019
<ul style="list-style-type: none">• Co-led initiatives to improve access to King’s College Cambridge.• Arranged and participated in an access initiative to Middlesborough, UK, speaking to over 1000 students from under-privileged backgrounds about tertiary education.	

REFERENCES

Lucy G. Cheke (PhD Supervisor)	lgc23@cam.ac.uk
Marta Halina (PhD Supervisor)	mh801@cam.ac.uk
José Hernández-Orallo (Academic Collaborator)	jorallo@upv.es
Eric Schulz (Postdoc Adviser)	eric.schulz@helmholtz-munich.de
Nicola Clayton (PhD Examiner)	nsc22@cam.ac.uk
Cameron J. Buckner (PhD Examiner)	cjbuckner@uh.edu
Bert Vaux (Undergraduate Supervisor)	bv230@cam.ac.uk
John McCarthy (Cambridge BioNexus CEO)	john3mccarthy@gmail.com