

**KAMILA JOZWIK**

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**EMPLOYMENT**

Sir Henry Wellcome postdoctoral fellow 2018 - present  
 Massachusetts Institute of Technology & University of Cambridge  
 (1-year maternity leave)

Humboldt postdoctoral fellow 2016 - 2017  
 Freie Universität Berlin

**EDUCATION**

PhD, Biological Sciences, University of Cambridge 2011 - 2016

MPhil, Biological Sciences, University of Cambridge 2010 - 2011

BSc, Biotechnology, University of Warsaw 2007 - 2010

**PUBLICATIONS** (666 citations) <https://scholar.google.com/citations?user=oEifmSgAAAAJ&hl=en>

**JOURNAL PUBLICATIONS**

- **Jozwik, K.M.**, Kietzmann, T.C., Cichy, R.M., Kriegeskorte, N., Mur, M. (2023)  
 "Deep neural networks and semantic models explain complementary components of human ventral-stream representational dynamics" *Journal of Neuroscience*, corresponding author
- **Jozwik\***, **K.M.**, O'Keefe\*, J., Storrs\*, K.R., Guo, W., Golan, T., Kriegeskorte, N. (2022)  
 "Face dissimilarity judgements are predicted by representational distance in morphable and image-computable models" *Proceedings of the National Academy of Sciences* (\*contributed equally), corresponding author  
<https://www.pnas.org/doi/full/10.1073/pnas.2115047119>
- **Jozwik, K.M.**, Najarro, E., van den Bosch, J.J.F., Charest, I., Cichy\*, R.M. and Kriegeskorte\*, N. (2022)  
 "Disentangling five dimensions of animacy in human brain and behaviour" *Communications Biology*, corresponding author  
<https://doi.org/10.1038/s42003-022-04194-y>
- **Jozwik, K.M.** (2021)  
 "What AI can learn from the biological brain" *Science* (book review)  
<https://www.science.org/doi/10.1126/science.abi4889>
- Adhya, D., Swarup, V., Nagy, R., Dutan, L., Shum, C., Valencia-Alarcón, E.P., **Jozwik, K.M.**, Mendez, M.A., Horder, J., Loth, E., Nowosiad, P., Lee, I., Skuse, D., Flinter, F.A., Murphy, D., McAlonan, G., Geschwind, D.H., Price, J., Carroll, J., Srivastava, D.P., Baron-Cohen, S. (2021)  
 "Atypical neurogenesis in induced pluripotent stem cell (iPSC) from autistic individuals" *Biological Psychiatry* (designed initial genomics analyses and processed samples, collaboration initiator)  
[https://www.biologicalpsychiatryjournal.com/article/S0006-3223\(20\)31702-9/fulltext](https://www.biologicalpsychiatryjournal.com/article/S0006-3223(20)31702-9/fulltext)
- Cichy, R.M., Kriegeskorte, N., **Jozwik, K.M.**, van den Bosch, J.J.F., Charest, I. (2019)  
 "The spatiotemporal neural dynamics underlying perceived similarity for real-world objects" *Neuroimage* (collected and analysed part of the behavioural data)  
<https://www.sciencedirect.com/science/article/pii/S1053811919302083>
- **Jozwik, K.M.**, Kriegeskorte, N., Storrs, K.R., Mur, M. (2017)  
 "Deep convolutional neural networks outperform feature-based but not categorical models in explaining object similarity judgments" *Frontiers in Psychology*, corresponding author  
<https://www.frontiersin.org/articles/10.3389/fpsyg.2017.01726/full>

- **Jozwik, K.M.**, Kriegeskorte, N., Mur, M. (2016)  
"Visual features as stepping stones toward semantics: Explaining object similarity in IT and perception with non-negative least squares" *Neuropsychologia*  
<https://www.sciencedirect.com/science/article/pii/S0028393215301998?via%3Dihub>
- **Jozwik, K.M.**, Chernukhin, I., Serandour, A.A., Nagarajan, S., Carroll, J.S. (2016)  
"FOXA1 directs H3K4 monomethylation at enhancers via recruitment of the methyltransferase MLL3" *Cell Reports*  
<https://doi.org/10.1101/689844>
- **Jozwik, K.M.**, Carroll, J.S. (2012)  
"Pioneer factors in hormone dependent cancers" *Nature Reviews Cancer*  
<https://doi.org/10.1038/nrc3263>

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## PEER-REVIEWED CONFERENCE PUBLICATIONS

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- **Jozwik, K.M.**, Lee, H., Kanwisher, N. and DiCarlo, J.J. (2019)  
"Are topographic deep convolutional neural networks better models of the ventral visual stream?" *Conference on Cognitive Computational Neuroscience*  
<https://ccneuro.org/2019/proceedings/0000674.pdf>
- **Jozwik, K.M.**, Kriegeskorte, N., Cichy, R.M., Mur, M. (2018)  
"Deep convolutional neural networks, features, and categories perform similarly at explaining primate high-level visual representations" *Conference on Cognitive Computational Neuroscience*  
<https://ccneuro.org/2018/proceedings/1232.pdf>
- **Jozwik, K.M.**, Charest, I., Kriegeskorte, N. and Cichy, R.M. (2017)  
"Animacy dimensions ratings and approach for decorrelating stimuli dimensions" *Conference on Cognitive Computational Neuroscience*  
<https://www.repository.cam.ac.uk/handle/1810/279144>

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## PREPRINTS

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- Lee, H., Margalit, E., **Jozwik, K.M.**, Cohen, M.A., Kanwisher, N., Yamins, D.L.K., DiCarlo, J.J. (2020).  
"Topographic deep artificial neural networks reproduce the hallmarks of the primate inferior temporal cortex face processing network" (performed analyses on wiring cost calculations and neural fits). *bioRxiv*  
<https://doi.org/10.1101/2020.07.09.185116>
- **Jozwik, K.M.**, Schrimpf, M., Kanwisher, N. and DiCarlo, J.J. (2019)  
"To find better neural network models of human vision, find better neural network models of primate vision"} *bioRxiv*  
<https://doi.org/10.1101/688390>
- **Jozwik, K.M.**, Lee, M., Marques, T., Schrimpf, M., Bashivan, P. (2019)  
"Large-scale hyperparameter search for predicting human brain responses in the Algonauts challenge"} *bioRxiv*  
<https://doi.org/10.1101/689844>

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## RESEARCH FUNDING (total ~£440,000)

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- Sir Henry Wellcome Postdoctoral Fellowship, University of Cambridge and Massachusetts Institute of Technology, "Explaining the heterogeneity and topography in inferior temporal cortex with deep neural networks", (4 years extended by maternity and sick leave, £290,000), 2018-2023
- Humboldt Foundation Postdoctoral Fellowship, Freie Universität Berlin, "The spatio-temporal representation of objects in visual and semantic domains in human brain and machine" (6 months, €25,630), 2017

- Cancer Research UK Graduate Studentship for PhD Studies, University of Cambridge, "The mechanisms of a pioneer factor FOXA1 function in breast cancer" (4 years, £104,140), 2011-2015
- Corbridge Cambridge Trust Scholarship for MPhil Studies, University of Cambridge, "The mechanisms of DNA repair" (£2,500), 2010
- MRC Weatherall Institute of Molecular Medicine Studentship, Oxford University, "Roles of Raly protein in DNA repair" (£1,000), 2010
- Amgen Foundation Research Scholarship, University of Cambridge, "Roles of ATRIP protein in DNA repair" (£1,000), 2009
- Molecular Biosciences International Student Scholarship, Aarhus University, "Mechanisms of transcription" (€1,500), 2009

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## **SUPERVISION**

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- Supervisor to five undergraduate and graduate students at Freie Universität Berlin and MIT (recruited, designed project, provided one-to-one supervision, oversaw report writing), 2017 - present
  - Palaash Agrawal, BEng, "Natural Scenes Dataset exploration: dimensionality", 2021 - 2022
  - Hermes Suen, BSc, "Comparison of best DNN models for human and monkey visual stream", 2019 - 2021
  - Laura Queipo, BSc, "Finding new selective regions in the brain using topographical deep convolutional neural networks", 2019 - 2020
  - Elias Najarro, MSc, "Resolving object recognition with deep neural networks: Exploration of deep networks architectures and EEG recordings for understanding the visual perception of animacy", Freie Universität Berlin, 2017 - 2018
  - Anton Komissarov, MSc, "Exploring the potential of deep neural networks as a model of human visual cortex", Freie Universität Berlin, 2017
- Initiated, led, and managed team of two postdocs (Tiago Marques, Pouya Bashivan) and two graduate students (Michael Lee, Martin Schrimpf) for the submission of computational models of visual system to the Algonauts Challenge that resulted in independent bioRxiv paper, 2018

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## **TEACHING**

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Tutor, completed course in on-line teaching, Cambridge Advance Online, Neuroanatomy, 2022

Graduate course lecturer, designed and taught "Object recognition" lectures at "Cognitive Science" at MIT, Student evaluation 4.93 (1-5 scale), 2020

Undergraduate course lecturer, organised, designed and taught "Deep neural networks as a window into the human brain" at MIT, Student evaluation 4.60 (1-5 scale), 2020

Tutorial lecturer, Cambridge Methods in Cognitive Neuroscience Day, "Predicting human and monkey visual brain representations with biologically-inspired deep neural networks", 2019

Tutorial lecturer, Cambridge Vision Workshop, "Weighted representational modelling in deep neuronal networks", 2016

Tutorial lecturer, at MRC Cognition and Brain Sciences Methods Day, "Weighted representational modelling in fMRI and behaviour", 2015

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## **AWARDS**

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- Churchill College By-Fellowship, 2019
- Best Poster Award at McGovern Institute for Brain Research at MIT Retreat, 2019
- International Brain Research Organization Stipend, 2016

- Organization for Human Brain Mapping Merit Abstract Award (\$2,000), 2016
- Concepts, Actions and Objects Conference Abstract Award (€200), 2016
- Cambridge University Representative for Global Young Scientists Summit, 2013
- Road to Harvard Competition Winner, Academic Visit to Harvard University, 2010
- The Erasmus program grant, 2009

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## **TRAVEL GRANTS**

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- Elsevier/*Vision Research* Travel Award (\$500), 2016
- Freie Universität Berlin Dean's stipend (€1,970), 2016
- Grant to attend CSHL Computational Neuroscience: Vision Course, 2016
- Grant to attend Computational Vision Summer School at the Black Forest, 2015
- Guarantors of Brain Travel Grant (£600), 2015
- Grindley Travel Grant from Experimental Psychology Society (£500), 2015
- Cambridge Philosophical Society Conference Grant (£350), 2015
- Amgen Scholars Travel Award (£970), 2013
- Darwin College Conference Grant (£150), 2013

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## **SELECTED INVITED AND CONFERENCE TALKS**

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Selected Talk at Nanosymposium at Society for Neuroscience conference, 2022

Invited Talk at Mathematics of Neuro-Science symposium, International Conference of Numerical Analysis and Applied Mathematics, 2022

Invited Talk at Western University, 2022

Selected Talk at Applied Vision Association Spring 2022 meeting, 2022

Selected Talk at Mathematics of Neuro-Science symposium, International Conference of Numerical Analysis and Applied Mathematics, 2021

Selected Talk at European Conference on Visual Perception, 2021

Invited Talk, Simons Collaboration on the Global Brain Postdoc Meeting, 2020

Invited Talk at Brown University, 2020

Selected Data Blitz Talk, 7th Cambridge Neuroscience Symposium: Artificial and Biological Cognition, 2019

Invited Talk at Symposium: How Humans and Machines Learn to See?, 2019

Invited Talk at Boston College, 2019

Invited Talk at Harvard Vision Lab, 2018

Invited Talk at MRC Cognition and Brain Sciences Unit, 2018

Selected Talk at Center for Brains, Minds and Machines retreat, 2018

Selected Talk at Nanosymposium at Society for Neuroscience conference, 2018

Selected Talk at Organization for Human Brain Mapping Conference, 2016

Selected Talk at Concepts, Actions and Objects Conference, 2016

Selected Talk at Nanosymposium at Society for Neuroscience conference, 2015

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## ACADEMIC SERVICE

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Organizer and co-chair of workshop: "Challenges for deep neural network models of visual cognition: From incorporating biological constraints to predicting correlational and causal experimental outcomes", Computational and Systems Neuroscience Conference, 2019

Academic interviewer at Center for Brains, Minds and Machines, MIT, 2019

Debate chair and moderator "How do deep neural networks differ from brains" at Center for Brains, Minds and Machines retreat, MIT, 2018

Student application reviewer and co-recruiter at Center for Brains, Minds and Machines Summer School, MIT, 2018

Reviewer at Science; Nature; Nature Human Behaviour; Nature Communications; Neuroimage; PLOS Computational Biology; PLOS One; Human Brain Mapping; Journal of Experimental Psychology Human Perception and Performance; IEEE Journal of Biomedical and Health Informatics; Molecular Autism; Royal Society Open Science; Conference on Neural Information Processing Systems; Cognitive Computational Neuroscience Conference; Computational and Systems Neuroscience Conference; Brains, Minds and Machines Summer Course

Public engagement lecturer "Deep neural networks: from recognising objects to making art" at Berlin Night of Science, Freie Universität Berlin, 2017

Membership: Center for Brains, Minds & Machines; MIT Quest for Intelligence; Society for Neuroscience; Vision Sciences Society; Organization for Human Brain Mapping; Applied Vision Association

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## REFEREES

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