Guillermo Antonio Puebla Ramírez

Personal information

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Professional experience

Assistant Professor — Santiago, Chile
Economics and Administration School, Universidad de Tarapacá — 2024-Present

Research Associate — Santiago, Chile
National Center for Artificial Intelligence — 2024-Present

Postdoctoral Researcher — Santiago, Chile
National Center for Artificial Intelligence — 2023

Postdoctoral Researcher — Bristol, United Kingdom
School of Psychological Science, University of Bristol — 2021-2022

Education

PhD in Psychology — Edinburgh, United Kingdom
University of Edinburgh — 2022

MPhil in Psychology — Brisbane, Australia
University of Queensland — 2015

BSc in Psychology — Arica, Chile
Universidad de Tarapacá — 2008

Publications

Journal articles

Puebla, G., & Bowers, J. S. (2025). Visual reasoning in object-centric deep neural networks: A comparative cognition approach. *Neural Networks*, *189*, 107582. doi: 10.1016/j.neunet.2025.107582

Marchant, N., Puebla, G., & Chaigneau, S. E. (2025). Rules in the mist: Emerging probabilistic rules in uncertain categorization. *Cognition*, *264*, 106264. doi: 10.1016/j.cognition.2025.106264

Fong, F. T., Puebla, G., & Nielsen, M. (2024). The role of conventionality and design in children's function judgments about malfunctioning artifacts. *Journal of Experimental Child Psychology*, *240*, 105835. doi: 10.1016/j.jecp.2023.105835

Bowers, J. S., Malhotra, G., Adolfi, F. G., Dujmović, M., Montero, M. L., Biscione, V., Puebla, G., Hummel, J., & Heaton, R. F. (2023). On the importance of severely testing deep learning models of cognition. *Cognitive Systems Research*, *82*, 101158. doi: 10.1016/j.cogsys.2023.101158

Bowers, J. S., Malhotra, G., Dujmović, M., Montero, M. L., Tsvetkov, C., Biscione, V., Puebla, G., Adolfi, F., Hummel, J. E., Heaton, R. F., & et al. (2023). Clarifying status of dnns as models of human vision. *Behavioral and Brain Sciences*, *46*, e415. doi: 10.1017/S0140525X23002777

Bowers, J. S., Malhotra, G., Dujmović, M., Llera Montero, M., Tsvetkov, C., Biscione, V., Puebla, G., Adolfi, F., Hummel, J. E., Heaton, R. F., & et al. (2023). Deep problems with neural network models of human vision. *Behavioral and Brain Sciences*, *46*, e385. doi: 10.1017/S0140525X22002813

Puebla, G., & Bowers, J. S. (2022). Can deep convolutional neural networks support relational reasoning in the same-different task? *Journal of Vision*, *22*(11), 1–18. doi: 10.1167/jov.22.10.11

Doumas, L. A., Puebla, G., Martin, A. E., & Hummel, J. E. (2022). A theory of relation learning and cross-domain generalization. *Psychological Review*, *129*(5), 999. doi: 10.1037/rev0000346

Puebla, G., Martin, A. E., & Doumas, L. A. (2021). The relational processing limits of classic and contemporary neural network models of language processing. *Language, Cognition and Neuroscience*, *36*(2), 240–254. doi: 10.1080/23273798.2020.1821906

Chaigneau, S. E., Puebla, G., & Canessa, E. C. (2016). Why the designer's intended function is central for proper function assignment and artifact conceptualization: Essentialist and normative accounts. *Developmental Review*, *41*, 38–50. doi: 10.1016/j.dr.2016.06.002

Puebla, G., & Chaigneau, S. E. (2014). Inference and coherence in causal-based artifact categorization. *Cognition*, *130*(1), 50–65. doi: 10.1016/j.cognition.2013.10.001

Chaigneau, S. E., & Puebla, G. (2013). The proper function of artifacts: Intentions, conventions and causal inferences. *Review of Philosophy and Psychology*, *4*(3), 391–406. doi: 10.1007/s13164-013-0146-3

Conference proceedings

Marchant, N., Puebla, G., Quillien, T., & Chaigneau, S. E. (2024). Rationally uncertain: Investigating deviations from explaining away and screening off in causal reasoning. *Proceedings of the Annual Meeting of the Cognitive Science Society*, *46*. https://escholarship.org/uc/item/31r8z1h8

Biscione, V., Yin, D., Malhotra, G., Dujmović, M., Montero, M. L., Puebla, G., Adolfi, F. G., Tsvetkov, C., Heaton, R. F., Hummel, J., Evans, B. D., & Bowers, J. S. (2023). Introducing the mindset benchmark for comparing DNNs to human vision. *2023 Conference on Cognitive Computational Neuroscience*. https://2023.ccneuro.org/view_paper35ce.html?PaperNum=1127

Puebla, G., & Bowers, J. S. (2023). The role of object-centric representations, guided attention, and external memory on generalizing visual relations. *2023 Conference on Cognitive Computational Neuroscience*. https://2023.ccneuro.org/view_paperc93f.html?PaperNum=1499

Puebla, G., & Bowers, J. (2021). Can deep convolutional neural networks learn same-different relations? *Proceedings of the Annual Meeting of the Cognitive Science Society*, *43*. https://escholarship.org/uc/item/4d13996b

Doumas, L. A., Puebla, G., Martin, A. E., & Hummel, J. E. (2020). Relation learning in a neurocomputational architecture supports cross-domain transfer. *Proceedings of the Annual Meeting of the Cognitive Science Society*, *42*. https://escholarship.org/uc/item/35v29557

Doumas, L. A., Puebla, G., Hummel, J. E., & Martin, A. E. (2019). Predicate learning via neural oscillations supports one-shot generalization between video games. *2019 Conference on Cognitive Computational Neuroscience*. https://2019.ccneuro.org/Papers/ViewPaperscecd.html?PaperNum=1112

Doumas, L. A., Hamer, A., Puebla, G., & Martin, A. E. (2017). A theory of the detection and learning of structured representations of similarity and relative magnitude. *Proceedings of the Annual Meeting of the Cognitive Science Society*, *39*. https://escholarship.org/uc/item/9z1890cr

Puebla-Ramírez, G., & Chaigneau, S. (2011). Is the centrality of design history function an effect of causal knowledge? *Proceedings of the Annual Meeting of the Cognitive Science Society*, *33*. https://escholarship.org/uc/item/1dk748w1

Media coverage

Glickman, K. (2025, December 30). Computers are getting much better at learning to "see". *Knowable Magazine*. https://knowablemagazine.org/content/article/technology/2025/how-computers-are-getting-better-recognizing-images

O'Grady, C. (2025, July 2). Researchers claim their ai model simulates the human mind. others are skeptical. *Science*. doi: 10.1126/science.z6czuhe

Pavlus, J. (2021, June 23). Same or different? the question flummoxes neural networks. *Quanta Magazine*. https://www.quantamagazine.org/same-or-different-ai-cant-tell-20210623/

Grants

A new look at human innovation: decoding the brainwaves and behaviors behind breakthroughs — Chile
Co-Investigator (PI Felipe Munoz-Rubke) — 2025-2029
National Agency for Research and Development

3D symmetry perception and shape constancy in infants and deep neural networks — Chile
Principal Investigator — 2024-2027
National Agency for Research and Development

El rol de procesamiento heurístico y deliberativo de la información, la receptividad y el escepticismo ingenuo, en la susceptibilidad a la desinformación en el ámbito de la salud — Chile
Co-Investigator (PI Rodrigo Ferrer-Urbina) — 2022-2024
National Agency for Research and Development

A descriptive model of causal-based categorization — Chile
Co-Investigator (PI Sergio Chaigneau) — 2019-2022
National Agency for Research and Development

Scholarships

International PhD scholarship — Chile
National Agency for Research and Development — 2018-2022

International Master's scholarship — Chile
National Agency for Research and Development — 2013-2015

Teaching

Introduction to Artificial Intelligence — 2025
Undergraduate, Universidad de Tarapacá

Introduction to Deep Learning — 2025
Undergraduate, Universidad de Tarapacá

Generative Artificial Intelligence and Language Models 2024
Postgraduate diploma, National Center for Artificial Intelligence

Quantitative Methods for Psychology II 2009
Undergraduate, Universidad de Tarapacá

Quantitative Methods for Psychology I 2009
Undergraduate, Universidad de Tarapacá

Professional service

Ad hoc reviewer

Journals
Psychological Review, *Cognition*, *Philosophical Transactions of the Royal Society B*, *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *PLOS Computational Biology*, *Artificial Intelligence Review*, *Cognitive Science*, *Cognitive Systems Research*, *PLOS ONE*, *Vision Research*, *Transactions on Machine Learning Research*, *Machine Vision and Applications* 2017-present

Research grant
Dutch Research Council Social Sciences and Humanities Talent Programme 2025

Member of working group

Seguridad e Inteligencia Artificial
Fundación Encuentros del Futuro 2025

Trabajo del Futuro
Fundación Encuentros del Futuro 2024

Seminar series organizer

Generalization in Mind & Machine University of Bristol
https://mindandmachine.blogs.bristol.ac.uk/seminars 2022

Ciencias Cognitivas en Chile: Desarrollos Actuales Online
https://sites.google.com/view/cienciascognitivaschile 2021

Languages

Spanish Native

English Advanced