Charley M. Wu

Curriculum Vitae

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Academic Background

Current Position

2016-Present   **Pre-Doctoral Research Fellow**, *Center for Adaptive Rationality (ARC)*, Max Planck Institute for Human Development, Berlin, Germany.

Previous Positions

2018   **Visiting Research Fellow**, *Computational Cognitive Neuroscience Lab (P.I. Sam Gershman)*, Harvard University, Cambridge MA, USA.

2014-2015   **Research Assistant**, *Center for Adaptive Behavior and Cognition (ABC)*, Max Planck Institute for Human Development, Berlin, Germany.

2014   **Student Research Scientist**, *PetaByte Research*, Budapest, Hungary.

2013-2014   **Research Assistant**, *Intelligent Software Agents and New Media Group*, Austrian Institute for Artificial Intelligence (OFAI), Vienna, Austria.

2009   **Research Assistant**, *Center for Human Evolution, Cognition, and Culture (HECC)*, University of British Columbia, Vancouver, Canada.

Education

2016-Present   **PhD Candidate**, Center for Adaptive Rationality (ARC), Max-Planck-Institute for Human Development; Humboldt University, Berlin; International Max Planck Research School on Adapting Behavior in a Fundamentally Uncertain World, Berlin, Germany.

2015   **M.Sc. Cognitive Science**, *University of Vienna*, Vienna, Austria, *with Distinction*.

2009   **B.A. Philosophy**, *University of British Columbia*, Vancouver, Canada, *Dean's List*.

Honors and Awards

2016-Present   **Pre-Doctoral Fellowship**, *International Max Planck Research School on Adapting Behavior in a Fundamentally Uncertain World*, Germany.

2014   **Interdisciplinary College (IK) Stipend**, Günne, Germany.

2011-2012   **Joseph-Armand Bombardier Canada Graduate Scholarship**, *Social Sciences and Humanities Research Council of Canada (SSHRC)*, Canada, *Declined*.

2004 **President's Entrance Scholarship**, *University of British Columbia*, Canada.

Publications

Forthcoming

in prep Analytis, P. P., Wu, C. M., & Gelastopoulos, A. (in prep). Make-or-break: chasing risky goals or settling for safe rewards? *PsyArXiv*. Retrieved from psyarxiv.com/4gzfd/

in prep Schulz, E., Wu, C. M., Ruggeri, A., & Meder, B. (in prep). Searching for rewards like a child means less generalization and more directed exploration. *bioRxiv*. Retrieved from https://www.biorxiv.org/content/early/2018/05/21/327593

Peer reviewed articles

2018 Bouhlel, I., Wu, C. M., Hanaki, N., & Goldstone, R. L. (2018). Sharing is not erring: pseudo-reciprocity in collective search. In T. T. Rogers, M. Rau, X. Zhu, & C. W. Kalish (Eds.), *Proceedings of the 40th annual conference of the cognitive science society* (pp. 156–161). Austin, TX: Cognitive Science Society. Retrieved from mindmodeling.org/cogsci2018/papers/0050/0050.pdf

Schulz, E., Wu, C. M., Huys, Q. J., Krause, A., & Speekenbrink, M. (2018). Generalization and search in risky environments. *Cognitive Science*. doi:10.1111/cogs.12695

Wu, C. M., Schulz, E., Garvert, M. M., Meder, B., & Schuck, N. W. (2018). Connecting conceptual and spatial search via a model of generalization. In T. T. Rogers, M. Rau, X. Zhu, & C. W. Kalish (Eds.), *Proceedings of the 40th annual conference of the cognitive science society* (pp. 1183–1188). Austin, TX: Cognitive Science Society. Retrieved from mindmodeling.org/cogsci2018/papers/0232/0232.pdf

Wu, C. M., Schulz, E., Speekenbrink, M., Nelson, J. D., & Meder, B. (2018). Generalization guides human exploration in vast decision spaces. *Nature Human Behaviour*. Retrieved from www.biorxiv.org/content/early/2018/04/22/171371

2017 Wu, C. M., Meder, B., Filimon, F., & Nelson, J. D. (2017). Asking better questions: how presentation formats influence information search. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *43*(8), 1274–1297.

Wu, C. M., Schulz, E., Speekenbrink, M., Nelson, J. D., & Meder, B. (2017). Mapping the unknown: the spatially correlated multi-armed bandit. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. J. Davelaar (Eds.), *Proceedings of the 39th annual meeting of the cognitive science society* (pp. 1357–1362). Austin, TX: Cognitive Science Society. Retrieved from biorxiv.org/content/early/2017/04/28/106286

2016 Barkoczi, D., Analytis, P. P., & Wu, C. M. (2016). Collective search on rugged landscapes: a crossenvironmental analysis. In A. Papafragou, D. Grodner, D. Mirman, & J. Trueswell (Eds.), *Proceedings of the 38th annual conference of the cognitive science society* (pp. 918–923). Austin, TX: Cognitive Science Society. Retrieved from mindmodeling.org/cogsci2016/papers/0168/paper0168.pdf

Presentations

Nov. 2018   **Wu, C.M.**, *Guiding Exploration Through Generalization*, Concats, New York University, New York City, NY.

Nov. 2018   **Wu, C.M.**, *Guiding Exploration Through Generalization*, Fiery Cushman and Joshua Greene labs, Harvard University, Cambridge, MA.

Sept. 2018   **Wu, C.M.**, *Guiding Exploration Through Generalization*, Samuel Gershman Lab, Harvard University, Cambridge, MA.

May. 2018   **Wu, C.M.,** Schulz, E., Speekenbrink, M., Nelson, J.D., & Meder, B., *Generalization and Exploration: Insights from a spatial search task*, Department of Psychiatry and Psychotherapy, Charité - Universitätsmedizin, Berlin, Germany.

Sept. 2017   **Wu, C.M.,** Schulz, E., Speekenbrink, M., Nelson, J.D., & Meder, B., *Generalization and Exploration in Vast Spaces*, Centre for Mind/Brain sciences (CIMeC), University of Trento, Trento, Italy.

May. 2017   **Wu, C.M.,** Schulz, E., Speekenbrink, M., Nelson, J.D., & Meder, B., *Active Learning and Search in Unexplored Environments*, iSearch Lab, Max Planck Institute for Human Development, Berlin, Germany.

Apr. 2017   **Wu, C.M.,** Schulz, E., Speekenbrink, M., Nelson, J.D., & Meder, B., *Generalization Across Vast State Spaces: Human Exploration in Unknown Environments*, Cognition Lab, University of Zürich, Zürich, Switzerland.

Mar. 2017   **Wu, C.M.**, *Terra Incognito: Adaptive Learning and Information Search in Unknown Environments*, The Center for Adaptive Rationality (ARC), Max Planck Institute for Human Development, Berlin, Germany.

Feb. 2017   **Wu, C.M.,** Nelson, J.D., & Meder, B., *Adaptive Learning for Language Education*, Babbel, Berlin, Germany.

Nov. 2016   **Wu, C.M.,** Schulz, E., Speekenbrink, M., Nelson, J.D., & Meder, B., *Mapping the Unknown: Human Spatial Exploration-Exploitation*, Learning & Decision Making Lab, University College London, London, UK.

Feb. 2016   **Wu, C.M.,** Nelson, J.D., & Meder, B., *Functional Entropy for Understanding Ruggedness in Fitness Landscapes*, Entropy Workshop (DFG SPP 1516), Ludwigsburg, Germany.

Jul. 2018   **Wu, C.M.,** Schulz, E., Garvert, M.M., Meder, B., & Schuck, N.W., *Connecting conceptual and spatial search*, CogSci 2018, Madison, WI.

Jul. 2018   Bouhlel, I., **Wu, C.M.,** Hanaki, N., & Goldstone, R.L., *Sharing is not erring: Psuedo-reciprocal sharing in collective search*, CogSci 2018, Madison, WI.

Jul. 2016   **Wu, C.M.,** & Meder, B., Nelson, J.D., *Navigating uncertainty through information search*, Poster presented at CogSci 2018, Madison, WI..

Jul. 2018   **Wu, C.M.,** Schulz, E., Speekenbrink, M., Nelson, J.D., & Meder, B., *Guiding exploration through generalization*, MathPsych 2018, Madison, WI.

Mar. 2017 **Wu, C.M.,** Schulz, E., Speekenbrink, M., Nelson, J.D., & Meder, B., *Mapping the Unknown: The spatially correlated multi-armed bandit.*, CogSci 2017, London, UK.

Mar. 2017 **Wu, C.M.,** Schulz, E., Speekenbrink, M., Nelson, J.D., & Meder, B., *Mapping the Unknown: Model-based and Model-free Approaches Towards Spatial Reinforcement Learning*, TeaP 2017, Dresden, Germany.

Mar. 2017 **Wu, C.M.**, *Everybody GANs Now: Tutorial on Generative Adversarial Networks*, Berlin Machine Learning Seminar, Berlin, Germany.

Mar. 2017 **Wu, C.M.**, *Voyage into the Unknown: Adaptive Learning and Information Search*, IMPRS Thesis Workshop, Gut Gremmelin, Germany.

Mar. 2017 **Wu, C.M.**, *Adversarial Training: Math and Methods Tutorial*, Center for Adaptive Behavior and Cognition (ABC), Berlin, Germany.

Oct. 2016 **Wu, C.M.**, *Model Comparison: Statistical Workshop*, ABC Research Retreat, Gut Gremmelin, Germany.

Aug. 2016 **Wu, C.M.,** Jurányi, Z., Gulyas, L., & Kampis, G., *Blindfolded NLP: Unsupervised Learning for Automatically Generating Topic Labels*, Identification, Location and Temporal Evolution of Topics Workshop, Budapest, Hungary.

Jul. 2016 **Wu, C.M.,** Schulz, E., Speekenbrink, M., Nelson, J.D., & Meder, B., *Exploring the Unknown: Modeling Human Exploration-Exploitation Behavior*, Poster presented at Computational and Mathematical Modeling of Cognition, Dobbiaco, Italy. [PDF].

Mar. 2016 **Wu, C.M.**, *Gaussian Process Models: What do you do when you can't optimize?*, Berlin Machine Learning Seminar, Berlin, Germany.

Feb. 2016 **Wu, C.M.**, *Exploring Fitness Landscapes: How to discover good solutions to complex problems*, IMPRS Thesis Workshop, Berlin, Germany.

Feb. 2016 **Wu, C.M.,** Nelson, J.D., & Meder, B., *Characterizing Ruggedness in Fitness Landscapes*, ABC Conference, Berlin, Germany.

Aug. 2015 **Wu, C.M.,** Meder, B., Nelson, J.D., & Filimon, F., *The effect of presentation formats on rational information search*, SPUDM 25, Budapest, Hungary..

Jun. 2015 **Wu, C.M.,** Meder, B., Filimon, F., & Nelson, J.D., *The medium is the message: How presentation formats help people ask better questions*, MEi: CogSci Conference, Ljubljana, Slovenia.

Feb. 2015 Meder, B., **Wu, C.M.,** Nelson, J. D., & Filimon, F., *Presentation formats and information search*, Workshop on "Information, search, and causes: Rational and cognitive approaches", Turin, Italy.

Jun. 2014 **Wu, C.M.,** Skowron, M., & Petta, P., *Reading between the lines: a vector space model of language using semantic role structures*, Poster presented at MEi:CogSci Conference 2014, Kraków, Poland. [PDF].

Teaching

Jan. 2018 **Seminar**, *Computational Modeling Workshop*, MPRG iSearch Research Retreat, Bensdorf, Germany.

Sep. 2017 **Graduate Seminar**, *Computational Models of Cognition*, Berlin School of Mind and Brain (Cognitive Science Graduate Course), Humboldt University, Berlin, Germany.

──── Professional Service

Organizer of the 17th annual Summer Institute on Bounded Rationality, Berlin, Germany (2018)
PhD Representative for the Max Planck Institute for Human Development (2017-2018)
Ad-hoc Reviewer for Cognitive Science Society (6), Mind & Society (1), and Futures & Foresight Science (1)

──── Technical Skills

Programming Languages: Python, R, Matlab, JavaScript, HTML, jQuery, PHP, AJAX, CSS, and LaTeX.

Additional Software Skills: MongoDB, MySQL, Lasagne, Tensorflow, SKlearn, GenSim, NLTK, and Redis.

In a former life: Independent musician, multi-instrumentalist, sound engineer, and recording artist with five albums of original music and experience booking tours across Canada and the USA.

──── References

Prof. Dr. Gerd Gigerenzer
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Dr. Jonathan D. Nelson
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