Michael Chong Wang

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Hanover, New Hampshire 03755, U.S.A.

Education

- **Dartmouth College** *Sep 2021 - Present*
  Ph.D in Cognitive Neuroscience Hanover, NH
  - Advisor: Alireza Soltani
- **Washington University in St. Louis** *Aug 2017 - May 2021*
  B.S. in Computer Science, summa cum laude St. Louis, MO
  - Second major in Cognitive Neuroscience. Cum. GPA: 3.99/4.00

Research Interests

- Computational models of reinforcement learning in complex naturalistic environments.
- Using recurrent neural networks and dynamical systems theory to uncover the neural basis of flexible behavior.

Publications (* equal contribution)

- **Wang, M. C.**, & Soltani, A. (in prep). Selective activation of orthogonal neural subspaces supports attentional modulation of learning in multidimensional environments.
- Woo, J. H.*, **Wang, M. C.***, Bartolo, R., Averbeck, B. B., Soltani, A. (in prep). Dynamic model arbitration via modulation of population codes in the prefrontal cortex.
- Lewis, C.*, **Wang, M. C.***, Farashahi, S.*, Salholz-Hillel, M., & Soltani, A. (in prep). Dynamic valuation via range normalization in uncertain, changing reward contexts.
- Yazdanpanah, A.*, **Wang, M. C.***, Trepka, E., & Soltani, A. (in submission). Contributions of statistical learning to learning from reward feedback. bioRxiv, 2024-04.
- **Wang, M. C.**, & Soltani, A. (2025). Contributions of attention to learning in multidimensional reward environments. Journal of Neuroscience, 45(7).
- Singh, M. F., **Wang, M.**, Cole, M. W., & Ching, S. (2022). Efficient identification for modeling high-dimensional brain dynamics. In *2022 American Control Conference (ACC)* (pp. 1353-1358). IEEE.

Conference presentations (* equal contribution)

- **Wang, M. C.**, & Soltani, A. (2025). Selective activation of orthogonal neural subspaces supports attentional modulation of learning in multidimensional environments. Poster presentation at Society for Neuroscience Conference.
- Woo, J. H.*, **Wang, M. C.***, Bartolo, R., Averbeck, B. B., Soltani, A. (2025). Neural mechanisms of model arbitration in the prefrontal cortex. Poster presentation at Society for Neuroscience Conference.
- Lewis, C.*, **Wang, M. C.***, Farashahi, S.*, Salholz-Hillel, M., & Soltani, A. (2025). Dynamic valuation via range normalization in uncertain, changing reward contexts. Poster presentation at Society for Neuroeconomics
- Soltani, A., Woo, J. H.*, **Wang, M. C.***, Bartolo, R., Averbeck, B. B. (2025). Population-level mechanisms of model arbitration in the prefrontal cortex. Accepted for poster presentation at Annual Computational Neuroscience Meeting.
- Woo, J. H.*, **Wang, M. C.***, Bartolo, R., Averbeck, B. B., Soltani, A. (2024). Dynamic model arbitration through alignment of value with choice and reward subspaces in prefrontal cortex. Poster presentation at Society for Neuroscience.
- **Wang, M. C.**, & Soltani, A. (2024). Recurrent circuit mechanisms for reward learning in multidimensional environments. Poster presentation at Conference on Cognitive Computational Neuroscience 2024.
- Woo, J. H.*, **Wang, M. C.***, Bartolo, R., Averbeck, B. B., Soltani, A. (2024). Behavioral and neural evidence for dynamic model arbitration in dorsolateral prefrontal cortex. Poster presentation at Conference on Cognitive Computational Neuroscience 2024.
- Yazdanpanah, A.*, **Wang, M. C.***, Benz, M. P., & Soltani, A. (2023). Temporal regularities guide feature-based learning in complex reward environments. Poster presentation at Society for Neuroscience.
- **Wang, M. C.**, & Soltani, A. (2023). Network mechanisms underlying value-based attention in multi-dimensional reward learning. Accepted and withdrawn from Bernstein Conference 2023.
- **Wang, M. C.**, & Soltani, A. (2022). Contributions of attention to learning in high dimensional environments. Poster presentation at Society for Neuroscience.
- **Wang, C.**, & Ching, S. (2019). Biologically plausible recurrent Infomax learning. Poster presentation at WUSTL's Undergraduate Research Symposium.

Awards and Scholarships

- **Guarini Travel Award** Dartmouth *Fall 2025*
- **Marie A. Center 1982 Award for Excellence in Research** Dartmouth *Spring 2025*
- **Membership in Tau Beta Pi - Engineering Honor Society** WUSTL *Spring 2020*
- **Summer Undergraduate Research Award** WUSTL *Summer 2019*
- **Antoinette Frances Dames Award for Productive Scholarship in Engineering** WUSTL *Spring 2019*
- **Dean's List** WUSTL *Fall 2017 – Fall 2019*

Research Experience

- **Computational and Cognitive Neuroscience Lab** *Aug 2021 - Present*
  Graduate Student Dartmouth
  ◦ Advisor: Alireza Soltani
  ◦ Investigating the behavioral, computational, and neural basis of flexible learning in complex environments.
  ◦ Co-written NSF Research Experiences for Undergraduates Supplement. Awarded in Spring 2024.
- **Cognitive Control and Pathology Lab at WUSTL** *Aug 2020 - May 2021*
  Undergraduate Thesis Student WUSTL
  ◦ Advisor: Todd Braver
  ◦ Thesis title: Generative Modeling of Brain Dynamics and Functional Connectivity from MEG
- **Stanford Center for the Study of Language and Information** *Jun 2020 - Aug 2020*
  Summer Research Intern Stanford University
  ◦ Advisor: Noah Goodman
  ◦ Project title: Learning Disentangled Visual Representations with the Help of Language
- **Brain Dynamics and Control Research Group** *Nov 2018 - May 2021*
  Undergraduate Research Assistant WUSTL
  ◦ Advisor: ShiNung Ching
  ◦ Project title: Modulated Local Plasticity for Meta-Learning in Recurrent Neural Networks
- **Dynamic Cognition Lab** *Sept 2017 - Aug 2019*
  Undergraduate Research Assistant WUSTL
  ◦ Advisor: Jeffrey Zacks

Teaching and mentoring

- **Teaching assistant** *Dartmouth College*
  ◦ Perception Fall 2024
  ◦ Introduction to Neuroscience Winter 2024
  ◦ Laboratory in Psychological Sciences Fall 2022, Summer 2023
- **Student mentoring** *Dartmouth College*
  ◦ Caroline Fore (Women in Science Program) Winter 2024 - present
  ◦ Cara Lewis (EE Just Fellow) Fall 2024 - present
  ◦ Seoyoon (Evelyn) Choi (Women in Science Program) Winter 2024 - Spring 2024
  ◦ Marissa Benz (Women in Science Program) Winter 2023 - Spring 2023
- **Computer Science Tutor** *WUSTL*
  ◦ Undergraduate Student Services Sept 2018 – Dec 2019

Services

- **Journal Reviewer**
  ◦ PLOS Computational Biology, Nature Human Behavior
- **NSF Outreach** *Apr 2023, Apr 2024, Oct 2025*
  ◦ Introduction to scientific research at local high schools
- **Graduate Research Roundtable** *Sept 2022 - May 2023*
  ◦ Co-organized bi-weekly graduate student meetings for career development and community building
- **Synapse Neuroscience Club** *Sept 2018 - Dec 2018*

Skills

- **Programming:** Proficient in Python, MATLAB, R. Familiar with C++, Java, HTML, CSS, and Javascript.
- **ML/Modeling:** Deep learning (PyTorch), hierarchical Bayesian inference (NumPyro), mixed effects modeling
- **Data visualization& Experiment:** experiment design (jsPsych, PsychoPy), data visualization (Matplotlib, Seaborn, ggPlot)
- **Tools:** Git, Bash, Jupyter