

# Michael Chong Wang

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Hanover, New Hampshire 03755, USA

## EDUCATION

### • Dartmouth College

*PhD in Cognitive Neuroscience*

◦ Advisor: Alireza Soltani

*Aug 2021 - Present*

Hanover, NH

### • Washington University in St. Louis

*B.S. in Computer Science, summa cum laude*

◦ Second major in Cognitive Neuroscience. Cum. GPA: 3.98/4.00

*Aug 2017 - May 2021*

St. Louis, MO

## RESEARCH INTERESTS

- Computational modeling of human reinforcement learning and its interactions with selective attention and representation learning
- Analysis of multimodal neural data to reveal dynamic, population-level mechanisms supporting flexible and adaptive behavior across species
- Mechanistic interpretation of task-optimized neural networks to identify common principles relevant to biological and artificial intelligence

## 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*

## PUBLICATIONS (\* EQUAL CONTRIBUTION)

Full publication list available on [Google Scholar](#).

- **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). Reward feedback reorganizes neural representations to enable flexible behavior under uncertainty.
- Lewis, C.\*, **Wang, M. C.\***, Farashahi, S.\*, Salholz-Hillel, M., & Soltani, A. (in prep). Dynamic valuation via range normalization in uncertain, changing reward contexts.
- **Wang, M. C.**, & Soltani, A. (in prep). Attentional modulation of model-based reinforcement learning with multidimensional states.
- 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.

## TALKS

- **Wang, M. C.**, Lewis, C., Farashahi, S., Salholz-Hillel, M., & Soltani, A. (2025, Nov 4) Dynamic valuation via range normalization in uncertain, changing reward contexts. Cognitive Brown Bag, Dartmouth College
- **Wang, M. C.**, & Soltani, A. (2025, Feb 24). Interactions between model-based reinforcement learning and selective attention. Cognitive Brown Bag, Dartmouth College.
- **Wang, M. C.**, & Soltani, A. (2024, Jan 9). Circuit mechanisms for learning and attention in multidimensional environments. Cognitive Brown Bag, Dartmouth College.
- **Wang, M. C.**, Mu, J., & Goodman, N. D. (2021, Aug 14). Learning Disentangled Visual Representations with the Help of Language. CSLI internship presentation, Stanford University.

## CONFERENCE PRESENTATIONS (\* EQUAL CONTRIBUTION)

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- **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 Meeting.
- 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 Meeting.
- 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 Meeting.
- **Wang, M. C., & Soltani, A. (2024).** Recurrent circuit mechanisms for reward learning in multidimensional environments. Poster presentation at Conference on Cognitive Computational Neuroscience.
- 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.
- 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 Meeting.
- **Wang, M. C., & Soltani, A. (2022).** Contributions of attention to learning in high dimensional environments. Poster presentation at Society for Neuroscience Meeting.
- **Wang, C., & Ching, S. (2019).** Biologically plausible recurrent Infomax learning. Poster presentation at WUSTL's Undergraduate Research Symposium.

## EXPERIENCE

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- **Computational and Cognitive Neuroscience Lab** Aug 2021 - Expected Jun 2027  
*Graduate Student* Dartmouth College
  - Advisor: Alireza Soltani
  - Tentative thesis title: Computational Mechanisms Linking Representation Learning and Reinforcement Learning
  - Co-written NSF Research Experiences for Undergraduates Supplement. Awarded in Spring 2024.
- **Humana** May 2026 - Aug 2026  
*Graduate Analytics Internship* Remote
  - Project title: Estimating Heterogeneous Treatment Effects of Member Outreach with Causal Machine Learning
- **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 Object-centric Visual Representations with Optimal Transport from 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** Sep 2017 - Aug 2019  
*Undergraduate Research Assistant* WUSTL
  - Advisor: Jeffrey Zacks

## TEACHING AND MENTORING

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- **Teaching assistant** *Dartmouth College*
  - Perception *Fall 2024*
  - Introduction to Neuroscience (Guest lecture on the Resting Brain, Attention, and Consciousness) *Winter 2024*
  - Laboratory in Psychological Sciences (Held review session for probability and statistics) *Fall 2022, Summer 2023*
- **Student mentoring** *Dartmouth College*
  - Swetha Kaundinya (Early Research Access in the Sciences) *Winter 2026 - present*
  - Caroline Fore (Women in Science Program) *Winter 2025 - Spring 2025*
  - 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 *Sep 2018 – Dec 2019*

## SERVICES

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

## SKILLS

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- **Programming:** Python, SQL, R, MATLAB; familiar with C++, Java, JavaScript
- **Machine Learning:** scikit-learn, LightGBM, PyTorch, SHAP, NumPy, JAX, Weights & Biases
- **Causal Inference & Statistics:** causal ML / uplift modeling (CausalML), mixed-effects modeling (lme4/glmer), Bayesian inference (NumPyro), experimental design (jsPsych, PsychoPy)
- **Data Engineering & Visualization:** PySpark, Databricks, pandas, tidyverse, Matplotlib, Seaborn, ggplot2
- **Tools:** Git, Bash, Jupyter