Jiaxin (Cindy) Tu

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EDUCATION

Washington University in St. Louis   **St. Louis, MO**
Ph.D. Candidate in Neuroscience (GPA 3.83/4.00)   Expected May 2025
Dissertation: *Characterization of The Functional Modular Organization In The Developing Infant Brain Across Topological and Temporal Scales*
Advisor: Dr. Muriah Wheelock (co-advised with Dr. Adam Eggebrecht), Department of Radiology, Washington University in St. Louis

University of Minnesota Twin Cities   **Minneapolis, MN**
Non-degree Student - Honors Physics I (GPA 3.30/4.00)   2018-2019

University of Cambridge
B.A. (Hons) Natural Sciences (Physiology, Development and Neuroscience) (Class 2.1)   **Cambridge, UK**
Dissertation**:** *Understanding Drosophila Navigation Using Visual and Olfactory Cues*   2014-2017
Advisor: Dr. Trevor Wardill, Department of Physiology, Development and Neuroscience, University of Cambridge, UK

RESEARCH INTERESTS
Neuroimaging, functional connectivity, cognitive neuroscience, network neuroscience, neural coding, neuroAI

PUBLICATIONS (h-index: 5, total citations: 149, Details in Google Scholar: [Jiaxin (Cindy) Tu](#))
Peer-reviewed journal articles:

- **Tu JC**, Strain JF, Morris JC, Eck A, Babatunde B, Snyder AZ,Millar P, Preische O, Chhatwal JP, Cash DM, Cruchaga C, Fagan M, Fox, N, Graff-Radford NR, Hassenstab J, Jack CR, Karch CM, Levin J, McDade EM, Perrin RJ, Schofield PR, Xiong C, Morris JC, Jucker M, Benzinger TLS, Ances BM, Eggebrecht AT, Gordon BA, MD Wheelock and the Dominantly Inherited Alzheimer Network. (2024) Increasing hub vulnerability parallels disease severity in autosomal dominant Alzheimer's disease. *Network Neuroscience.* (*In Press*)
- Li J, Segel A, **Tu JC**, King K, Adeyemo B, Karcher N, Chen L, Eggebrecht AT, Wheelock MD. (2024). Network level analysis provides a framework for biological interpretation of machine learning results. *Network Neuroscience.* (*In Press*)
- Myers MJ, Labonte AK, Gordon EM, Laumann TO, **Tu JC**, Wheelock MD, Nielsen AN, Schwarzlose R, Camacho MC, Warner BB, Luby JL, Barch DM, Fair DA, Petersen SE, Rogers CE, Smyser CD, and Sylvester CM. (2024) Functional parcellation of the neonatal brain. *Cerebral Cortex.* 34, bhae047.
- Wheelock MD, Strain JF, Mansfield P, **Tu JC**, Tanenbaum A, Preische O, Chhatwal JP, Cash DM, Cruchaga C, Fagan AM, Fox NC, Graff-Radford NR, Hassenstab J, Jack CR, Karch CM, Levin J, McDade EM, Perrin RJ, Schofield PR, Xiong C, Morris JC, Jucker M, Benzinger TLS, Ances BM, Eggebrecht AT, Gordon BA, and the Dominantly Inherited Alzheimer Network (2023). Brain network decoupling with increased serum neurofilament and reduced cognitive function in Alzheimer's disease. *Brain.* 146, 2928-2943.
- Ebitz RB, **Tu JC**, Hayden BY. (2021). Rules warp feature encoding in decision-making circuits. *PLOS Biology.* 18 (11), e3000951.
- Yoo SBM, **Tu JC**, Hayden BY. (2021). Multicentric tracking of multiple agents by anterior cingulate cortex during pursuit and evasion. *Nature Communications.* 12 (1), 1985.
- Yoo SBM, **Tu JC**, Piantadosi ST, Hayden BY. (2020). The neural basis of predictive pursuit. *Nature Neuroscience.* 23 (2), 252-259.
- Mehta PS, **Tu JC**, LoConte GA, Meghan CP, and Hayden BY. (2019). Ventromedial prefrontal cortex tracks multiple environmental variables during search. *Journal of Neuroscience.* 39 (27), 5336-5350.

Under Review:

- **Tu JC**, Wang Y, Wang X, Dierker D, Sobolewski C, Day TKM, Kardan O, Miranda-Domínguez O, Moore L, Elison JT, Gordon EM, Laumann TO, Eggebrecht AT, Wheelock MD. (Under Review). A subset of brain regions within adult functional connectivity networks demonstrates high reliability across early development. *Developmental Cognitive*

Neuroscience.

In Preparation

- **Tu JC**, Myers MJ, Li W, Li J, Wang X, Dierker D, Haley C, Sobolewski C, Wang Y,Day TKM, Snyder A, Latham A, Kenley JK, Kaplan S, Feczko E, Kardan O, Miranda-Domínguez O, Moore L, Sylvester CM, Fair DA, Elison JT, Smyser CD, Gordon EM, Laumann TO, Eggebrecht AT, Wheelock MD. (*In Prep*). Early Life Neuroimaging: The Generalizability of Cortical Area Parcellations from Infancy Through Adulthood.

Accepted Conference Abstracts:

- Barretto-Garcia M, **Tu JC**, Padoa-Schioppa C. "Neuronal activity in the orbitofrontal cortex of monkeys choosing between three options varying on three dimensions". Cognitive Computational Neuroscience, Boston (Aug 2024)

- **Tu JC**, Latham A, Kenley K, Camacho MC, Kardan O, Feczki E, Kaplan S, Day TKM, Sylvester C, Miranda-Domínguez O, Moore LA, Fair DA, Smyser CD, Elison JT, Laumann TO, Gordon EM, Eggebrecht AT, Wheelock MD "Maturation of cortical connectivity in the core functional systems – infancy through childhood" Organization for Human Brain Mapping Annual Meeting, Seoul, South Korea (June 2024)

- Barretto-Garcia M, **Tu JC**, Padoa-Schioppa C. "Neuronal activity in the orbitofrontal cortex of monkeys choosing between three options varying on three dimensions". Society for Neuroscience, Washington DC (Nov 2023)

- **Tu JC,** Myers M, Sylvester C, Gordon EM, Laumann TO, Kardan O, Feczko E, Kaplan S, Day TKM, Miranda-Domínguez Ó, Moore LA, Sung S, Chamberlain TA, Snider K, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock "Development of Functional Systems In 0–2-year-olds" Poster Presentation and Flash Talk. Flux 2023, Santa Rosa, CA (Sept 2023) **Flash Talk**

- **Tu JC,** Myers M, Sylvester C, Gordon EM, Laumann TO, Kardan O, Feczko E, Kaplan S, Day TKM, Miranda-Domínguez Ó, Moore LA, Sung S, Chamberlain TA, Snider K, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock "Development of Functional Systems In 0-2-year-olds" Poster Presentation. Fetal, Infant, and Toddler Neuroimaging Group (FIT'NG) 2023, Santa Rosa, CA (Sept 2023)

- Feng X, Li J, Segel A, **Tu JC,** Kardan O, Day TKM, Miranda-Domínguez Ó, Moore LA, Chamberlain TA, Snider K, Adeyemo B, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock "Effects of functional network model definition on biomarker outcome prediction" Poster Presentation. Organization for Human Brain Mapping Annual Meeting, Montréal, Canada (July 2023)

- **Tu JC,** Myers M, Sylvester C, Gordon EM, Laumann TO, Kardan O, Feczko E, Kaplan S, Day TKM, Miranda-Domínguez Ó, Moore LA, Sung S, Chamberlain TA, Snider K, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock "Developing and benchmarking functional parcellations in infant neuroimaging datasets" Poster Presentation. Organization for Human Brain Mapping Annual Meeting, Montréal, Canada (July 2023)

- **Tu JC,** Myers M, Sylvester C, Gordon EM, Laumann TO, Kardan O, Feczko E, Kaplan S, Day TKM, Miranda-Domínguez Ó, Moore LA, Sung S, Chamberlain TA, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock "Two alternative paths towards reliable infant network studies." Poster Presentation. The 7th Whistler Scientific Workshop on Brain Functional Organization, Connectivity and Behavior, Whistler-Blackcomb, B.C., Canada (Feb 2023).

- **Tu JC**, Strain JF, Morris JC, Bateman RJ, Benzinger TLS, Eggebrecht AT, Ances BM, Gordon BA, MD Wheelock and the Dominantly Inherited Alzheimer Network. "The level of hub disruption in autosomal dominant Alzheimer's disease is related to cognitive decline." Poster Presentation. Society for Neuroscience, San Diego, CA, USA (Nov 2022)

- **Tu J**, Yoo SB, Hayden BY. "Neural representation of allocentric and egocentric positions in a dynamic foraging task." Poster presentation. Society for Neuroscience, San Diego, CA, USA (Nov 2018)

Department seminars/retreats/invited talks:

- **Tu JC**, Camacho MC, Day TKM, Miranda-Domínguez Ó, Moore LA, Kardan O, Feczko E, Fair DA, Elison JT, Laumann TO, Gordon EM, Eggebrecht AT, Wheelock MD "Untangling the Sensorimotor-to-Association and Local-to-Distributed Organization of Brain Development"

- **Tu JC**, Myers MJ, Li W, Li J, Wang X, Dierker D, Haley C, Sobolewski C, Wang Y, Snyder A, Latham A, Kenley JK,

Kaplan S, Feczko E, Day TKM, Kardan O, Elison JT, Smyser CD, Gordon EM, Laumann TO, Eggebrecht AT, Wheelock MD "Early Life Neuroimaging: The Generalizability of Cortical Area Parcellations from Infancy Through Adulthood" Student talk, Cognitive Computational and Systems Neuroscience Pathway Mini-retreat (May 2024)

- **Tu JC,** Myers M, Sylvester C, Gordon EM, Laumann TO, Kardan O, Feczko E, Kaplan S, Day TKM, Miranda-Domínguez Ó, Moore LA, Sung S, Chamberlain TA, Snider K, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock "Developing and benchmarking functional parcellations in infant neuroimaging datasets" Poster Presentation. Washington University in St. Louis Neuroscience Retreat. St. Louis, MO (Oct 2023)

- **Tu JC,** Myers M, Sylvester C, Gordon EM, Laumann TO, Kardan O, Feczko E, Kaplan S, Day TKM, Miranda-Domínguez Ó, Moore LA, Sung S, Chamberlain TA, Snider K, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock "Development of Functional Systems In 0–2-year-olds" Intellectual and Developmental Disabilities Research Center (IDDRC) Seminar (Sept 2023)

- **Tu JC,** Myers M, Sylvester C, Gordon EM, Laumann TO, Kardan O, Feczko E, Kaplan S, Day TKM, Miranda-Domínguez Ó, Moore LA, Sung S, Chamberlain TA, Snider K, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock "Benchmarking functional parcellations in infant neuroimaging" Poster Presentation. Washington University in St. Louis Graduate Research Symposium. St. Louis, MO (April 2023)

- **Tu JC,** Myers M, Sylvester C, Gordon EM, Laumann TO, Kardan O, Feczko E, Kaplan S, Day TKM, Miranda-Domínguez Ó, Moore LA, Sung S, Chamberlain TA, Snider K, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock "Benchmarking functional parcellations in infant neuroimaging" Poster Presentation. Washington University in St. Louis Imaging Retreat. St. Louis, MO (April 2023)

- **Tu JC,** Myers M, Sylvester C, Gordon EM, Laumann TO, Kardan O, Feczko E, Kaplan S, Day TKM, Miranda-Domínguez Ó, Moore LA, Sung S, Chamberlain TA, Snider K, Fair DA, Rosenberg MD, Smyser CD, Elison JT, Eggebrecht AT, MD Wheelock **"**Developing and benchmarking functional parcellations in infant neuroimaging datasets." Developmental Neuroimaging Seminar. Washington University in St. Louis, St. Louis, MO (Dec 2022).

- **Tu JC**, Strain JF, Morris JC, Bateman RJ, Benzinger TLS, Eggebrecht AT, Ances BM, Gordon BA, MD Wheelock and the Dominantly Inherited Alzheimer Network. "The level of hub disruption in autosomal dominant Alzheimer's disease is related to cognitive decline." Poster Presentation. Washington University in St. Louis Neuroscience Retreat. Potosi, MO (Oct 2022)

- **Tu JC**, Strain JF, Morris JC, Bateman RJ, Benzinger TLS, Eggebrecht AT, Ances BM, Gordon BA, MD Wheelock and the Dominantly Inherited Alzheimer Network. "The level of hub disruption in autosomal dominant Alzheimer's disease is related to cognitive performance." Poster Presentation. Washington University in St. Louis Summer Program of Imaging in Neuroscience (SPIN). St. Louis, MO (July 2022)

- Jensen J*, Marathe S*, **Tu JC** *, Versteeg C* "Dynamics of Motor Cortex: Intrinsic or Extrinsic?" Neuromatch Academy, Deep Learning Workshop Project Presentation, Online (Aug 2021)

- Kwon S*, Liu T*, **Tu JC***, Yang FN* "Perception of gender ambiguous faces: neural network of face adaptation"

- Computational Sensory-Motor Neuroscience (CosMo) Summer School, Minneapolis, MN (July 2018)

- **Tu J***, S Chang*, Y Shen*, G. Jarvis. "Investigation of Effect of Drug Flibanserin on Platelet Aggregation." Poster presentation. Pharmacology mini-project presentation, Cambridge, UK (March 2016)

AWARDS AND HONORS
Washington University in St. Louis   **St. Louis, MO**

- Cognitive, Computational, and Systems Neuroscience (CCSN) Pathway Fellowship ($32500 annually for two years) — 2021-2023
- Competitive travel award ($1000) from McDonnell Center for Systems Neuroscience — 2023

University of Cambridge   **Cambridge, UK**

- Awarded B.A. Summa Cum Laude with Honors in Natural Sciences — 2017
- G C Grindley Fund for Undergraduate Summer Research (£1200) — 2015

PEER-REVIEW
- Psychophysiology (1 manuscript), Development Cognitive Neuroscience (1 manuscript), Computational Cognitive

Neuroscience Conference (5 manuscripts)

PROFESSIONAL EXPERIENCE

The Biotechnology and Life Sciences Advising Group (BALSA)   St. Louis, MO
2022-2023

Project Manager (1 project)
- Led a team of four consultants to research on market entry research for health monitoring products and digital platform

Consultant (2 projects)
- Conducted primary research with members to measure the level of engagement and impact of a research consortium
- Interviewed two faculty members, designed five online survey questions to obtain a 75% response rate, and drafted results for investor-facing materials
- Generated and presented key recommendations to directors of a research consortium about future events
- Conducted market analysis and researched market entry strategies for a biotechnology start-up company with a cryo-preservation media product
- Segmented the market with 100+ companies and conducted competitor analysis for product
- Presented results and recommendations to the CEO of a biotechnology start-up company

Washington University in St. Louis   St. Louis, MO

Graduate Researcher, PI: Muriah Wheelock (Co-mentored with Adam Eggebrecht)   2021-Present
- Spearheaded collaboration with large consortiums of researchers from Washington University and the University of Minnesota Twin Cities by creating regular communications
- Mentored high school, master's, and Ph.D. students, and explained research to an interdisciplinary team
- Use quantitative analysis to delineate the resting-brain functional connectivity organization in the brains of patients with autosomal-dominant Alzheimer's Disease and developing infants

Assistant Instructor (Coding and Statistical Thinking in the Neurosciences L41 Bio5648)   2021
- Led weekly office hours for one semester, graded homework, and taught one class in bootstrapping and resampling strategies

Rotation Student   2019-2021
- Surgeries on rat and monkey models, behavioral training for mice, rats, and monkeys, collected and processed single-neuron electrophysiology and 2-photon calcium imaging data, analyzed behavioral and neural data with MATLAB and R

University of Minnesota Twin Cities   Minneapolis, MN

Research technician, PI: Benjamin Hayden   2017-2019
- Trained undergraduate and graduate research assistants on the use of software to conduct behavioral experiments, electrophysiology data cleaning, and video data labeling
- Conducted quantitative analysis on in-vivo electrophysiology recordings to study neural tuning
- Presented at one international conference and published four papers in peer-reviewed journals
- Collected and processed intracranial EEG data in a clinical setting

University of Cambridge   Cambridge, UK

Undergraduate Researcher, PI: Trevor Wardill   2016-2017
- Thesis Research on Drosophila sensory preferences and analyzed data with 4-parameter logistic models

Summer Undergraduate Researcher, PI: Trevor Robbins   2015
- Collected behavioral and skin conduction data for a Pavolovian-To-Instrumental Transfer study

SERVICE AND OUTREACH ACTIVITIES

Washington University in St. Louis   St. Louis, MO

Secretary | Grad Nature Trippers   2024-2025
President | Grad Nature Trippers   2023-2024
- Organized committee meetings and facilitated key communications in the club   2023-2024

Vice-president | Women In STEM (WiSTEM)
- Ensured each division had the access to resources and help for organizing events, oversaw club operation

Professional Development Chair | Women In STEM (WiSTEM)   2022-2023
- Initializing monthly Growing Up in Science conversation series specifically inviting women scientists to share their struggles and career experience; organized one career seminar for job search

General Committee | DBBS Student Advisory Committee (SAC)   2022-2023
Peer Mentor | DBBS Neuroscience Program   2021-Present
Volunteer Demonstrator | Amazing Brain Carnival Science Fair   2022
Research Mentor | Young Scientist Program   2021, 2023

SUMMER SCHOOL AND PROFESSIONAL DEVELOPMENT WORKSHOPS ATTENDED

Neuromatch Academy Summer School - NeuroAI   07/2024
The 7th Whistler Scientific Workshop on Brain Functional Organization, Connectivity and Behavior   02/2023
Women in STEM (WiSTEM) Career Seminar, Washington University in St. Louis   12/2022
- Searching for science-oriented job opportunities (organizer)

The Teaching Center, Washington University in St. Louis   2022
- Asking Questions to Improve Learning
- Providing Verbal Feedback to Students
- Who's in Charge?

Neuroimaging Laboratories, Washington University in St. Louis   06/2021
- Neuroimaging techniques workshops

Neuromatch Academy Summer School – Deep Learning   08/2021
- With a group project: "Dynamics of Motor Cortex: Intrinsic or Extrinsic?"

Computational Sensory-Motor Neuroscience (CosMo) Summer School   08/2018
- With a group project: "Perception of gender-ambiguous faces: a neural network of face adaptation"

Udacity   07/2017
- Bertelsmann Data Science Challenge Scholarship Course

Coursera   2015-2020
- Machine Learning (Stanford University)
- Introductory Human Physiology (Duke University)
- Fundamentals of Reinforcement Learning (University of Alberta & Alberta Machine Intelligence Institute)
- Introduction to AI and Machine Learning on Google Cloud
- Introduction to Generative AI

Institute of Neuroscience, Chinese Academy of Sciences   08/2016
- Neuroscience Summer School with rotations in multiple labs

Graduate Coursework
- Fundamentals of Molecular Cell Biology (L41 BIOL 5068)
- Cellular Neurobiology (L41 BIOL 5571)
- Neural Systems (L41 BIOL 5651)
- The Science of Behavior (L41 BIOL 5665)
- Coding and Statistical thinking in the Neurosciences (L41 BIOL 5648)
- Biological Neural Computation (L41 BIOL 5657)
- Oral Presentation of Scientific Data (L41 BIOL 5565)
- Advanced Topics in Neuroscience: Neuroimaging nanocourse (L41 BIOL 5989)
- Communicating science: writing for multiple audiences (L41 BIOL 5866)
- Ethics and Research Science (L41 BIOL 5011)
- 1st Year Fundamentals (Grant writing) (L41 BIOL 5646)
- Cognitive Computational and Systems Neuroscience Project Building (L41 BIOL 5622)
- Linear Statistical Models (L24 MATH 439) (audit)
- Advanced Cognitive, Computational, and Systems Neuroscience (E62 BME 519)
- Applications of Deep Neural Networks (T81 INFO 558)