

# ETHAN CHANG

Ph.D. Student | WashU in St. Louis

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## SUMMARY

Passionate researcher interested in computational neuroscience. Key interests include generalizing neural networks, mathematical modeling, AI/ML/DL, and astrocytes.

## SKILLS

**Languages** Python, MATLAB, R, Java, C, SQL, HTML, CSS, JavaScript.  
**Other** Sage, LaTeX, Excel, Powerpoint.

## EDUCATION

2025 – Present    **Ph.D. in Neuroscience**    Washington University in St. Louis  
School of Medicine, Division of Biology & Biological Sciences (DBBS)  
• Thesis Advisor: TBD

2021 - 2025    **Bachelor of Arts in Mathematics**    University of Rochester  
**Bachelor of Science in Neuroscience with High Distinction**  
• Minor in Psychology. Cluster in Philosophy: Ethics and Values.

## CERTIFICATIONS

2025    **Advanced Data Analytics Professional Certificate (in progress)**    Google  
2025    **Corporate Finance Professional Certificate (in progress)**    Columbia X  
2025    **Computer Science for Artificial Intelligence Professional Certificate**    Harvard X  
2021 - 2025    **Biotechnology Certificate**    University of Rochester  
2024    **Generative AI for Business Leaders**    IBM

## AWARDS/GRANTS

2021 – 2025    **Undergraduate**    University of Rochester  
• Schwartz Discover Grant, 2024  
• Dean's List  
• BankCard Services Scholarship Award, 2021

## RESEARCH

2021 – 2025    **Researcher in Center for Translational Neuromedicine**    University of Rochester  
Department of Neurology, University of Rochester Medical Center  
• Laboratory of Dr. Maiken Nedergaard, M.D., D.M.Sc.  
• Official positions: School of Medicine and Dentistry Intern, Glymphatic System Technical Associate I, Schwartz Discover Scholar  
• Research Focus: The contribution of aquaporin-4 (located on astrocytic endfeet) to glymphatic function.

2023    **Microbiology Student Research**    University of Rochester  
• Under Dr. Richard K. Barth, Ph.D.  
• Investigated the isolation and characterization of hydrogen-sulfide-producing bacteria from the environment. Identify and resolve issues in isolating samples.

## PUBLICATIONS

- Gahn-Martinez D, Giannetto M, **Chang E**, Beam N, Pla V, Nedergaard M. Chronic Intraventricular Cannulation for the Study of Glymphatic Transport. *eNeuro*. doi: 10.1523/ENEURO.0537-24.2025
- Giannetto M, Gomolka R, Gahn-Martinez D, Newbold E, Bork P, **Chang E**, Gresser M, Thompson T, Mori Y, Nedergaard M. Glymphatic fluid transport is suppressed by the AQP4 inhibitor AER-271. *Glia*. doi: 10.1002/glia.24515

## PRESENTATIONS

- Chang E (presenter)**, Giannetto M, Agarwald I, Nick Vento, Gahn-Martinez D, Nedergaard M. Aquaporin-4 Expression on Glymphatic Clearance Routes and Function. Schwartz Discover Scholar Showcase. 2024
- Chang E (presenter)**, Giannetto M, Gahn-Martinez D, Nedergaard M. Aquaporin-4 Expression and Size-Dependent Solute Movement in the Brain. University of Rochester Undergraduate Research Exposition. 2024.
- Chang E (presenter)**, Barth RK. Isolation of Hydrogen Sulfide Producing Bacteria from the environment. Department of Microbiology and Immunology Poster Session. 2023.
- Giannetto M, Gomolka R, Gahn-Martinez D, Newbold E, Bork P, **Chang E (presenter)**, Gresser M, Thompson T, Mori Y, Nedergaard M. Glymphatic fluid transport is suppressed by the AQP4 inhibitor AER-271. University of Rochester Undergraduate Program in Biology and Medicine Poster Symposium. 2023.

TEACHING

2022 – Present	<div><div>Teaching</div><div><ul style="list-style-type: none"><li>• <b>Teacher for UR SPLASH</b> Co-taught a free class with Audrey Jung to RCSD High School students, introducing basic neuroscience concepts behind mental and degenerative disorders and how to get involved in research. 2024.</li><li>• <b>Teaching Assistant: NSCI 201P</b> Basic Neurobiology Lab at the University of Rochester, Department of Brain and Cognitive Sciences with Dr. Renee Miller, Ph.D. 2023.</li><li>• <b>Biology and Chemistry Tutor</b> Provided one-on-one tutoring assistance to high school biology and chemistry students. 2022-2023.</li></ul></div></div>
2023 – Present	<div><div>Mentoring</div><div><ul style="list-style-type: none"><li>• Audrey Jung, University of Rochester Undergraduate, C.O. 2027. Neuroscience Undergraduate Council.</li><li>• Isha Agarwald, University of Rochester Undergraduate C.O. 2026. Center for Translational Neuromedicine.</li><li>• Nick Ventokl, University of Rochester Undergraduate C.O 2026. Center for Translational Neuromedicine.</li></ul></div></div>

SERVICE AND LEADERSHIP

2025 – Present	<div><div>Graduate</div><div><ul style="list-style-type: none"><li>• Details pending</li></ul></div></div>	Washington University in St. Louis
2021 – 2025	<div><div>Undergraduate</div><div><ul style="list-style-type: none"><li>• <b>Deputy Chair for Academic Affairs Committee</b> Student's Association, where I played a key role in leading a team of nine on 15+ initiatives to enhance the student academic experience. Spearheaded projects expanding research opportunities and fostering inter- and intradepartmental collaboration.</li><li>• <b>Emergency Department Clinical Support</b> Strong Memorial Hospital. Supported clinical operations during the COVID-19 Omicron peak. Main responsibilities include vital acquisition, EKG, and phlebotomy. Helped nurses and doctors as needed.</li><li>• <b>Student Research Ambassador</b> Office of Undergraduate Research at the University of Rochester. Acted as a point of contact to answer questions about research involvement for 6000+ undergraduate students and served on the student re-search panels at admission events.</li><li>• <b>Emergency Medical Technician</b> RC-MERT, providing free and confidential service to students. Also served on the Selections Committee, where we assessed 80-100 applications and facilitated interviews.</li><li>• <b>Archery Club Executive Board</b> I helped run practices with 25+ people. Increased range time by 50% and assisted in managing equipment, club logistics, conflict resolution, and funding/budgeting.</li><li>• <b>Hospital volunteering</b> Friends of Strong, assisting multiple departments in logistics</li><li>• <b>College coach volunteer</b> AmeriCorps/Hoekelman Center at SMH. Assisted and encouraged underserved students at RCSD to at-tend college, where graduation rates rose to 71%</li></ul></div></div>	University of Rochester

RELEVANT COURSES

• Cellular Neurobiology	• Probability and Statistics	• Numerical Analysis	• Organic Chemistry I and II	• Social Psychology
• Neural Systems	• Data Structures and Algorithms	• Topology	• Biochemistry	• Clinical Psychology
• Computational Neuroscience	• Linear Algebra	• Stochastic Processes	• Genetics	• Social Political Philosophy
• Differential Equations	• Machine Learning	• Multidimensional Calculus	• Microbiology	• Philosophy of Death

LANGUAGES

English - native, Mandarin Chinese - intermediate