

Alex B. Chen

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POSITIONS

Massachusetts Institute of Technology	September 2026 – present
J. Douglas Tan Postdoctoral Fellow, Laboratory of Dr. Edward Boyden	
Harvard University	2018 - 2026
Graduate student, Program in Neuroscience	
Dissertation advisor: Dr. Florian Engert	
HHMI Janelia Research Campus	2021 - 2024
Graduate Research Fellow, Laboratory of Dr. Misha Ahrens	
Washington University in St. Louis	2014 - 2018
Bachelor of Arts, <i>summa cum laude</i>	
Thesis advisor: Dr. Barani Raman	
Neuroscience, Mathematics, Medical Humanities	

PUBLICATIONS

First- and co-first author publications

- **Chen, A.B.***, Duque, M., Rymbek, A., Dhanasekar, M., Wang, V.M., Mi, X., Tocquer, L., Narayan, S., Legorreta, E.M., Eddison, M. and Yu, G., 2025. **Norepinephrine changes behavioral state through astroglial purinergic signaling**. *Science*, 388(6748), pp.769-775. (*first author, co-corresponding author).
- Mi, X.*, **Chen, A.B.***, Duarte, D., Carey, E., Taylor, C.R., Braaker, P.N., Bright, M., Almeida, R.G., Lim, J.X., Ruetten, V.M. and Wang, Y., 2025. **Fast, accurate, and versatile data analysis platform for the quantification of molecular spatiotemporal signals**. *Cell*, 188(10), pp.2794-2809. (*co-first author)
- Duque, M.*, **Chen, A.B.***, et al. 2025. **Ketamine induces plasticity in a norepinephrine-astroglial circuit to promote behavioral perseverance**. *Neuron*, 113(3), pp.426-443. (*co-first, co-corresponding author). Preprint: <https://doi.org/10.1101/2022.12.29.522099>
- **Chen, A.B.***, Deb, D., Bahl, A. and Engert, F., 2021. **Algorithms underlying flexible phototaxis in larval zebrafish**. *Journal of Experimental Biology*, 224(10), p.jeb238386. (*corresponding author)

Co-authored publications

- Lueckmann, J.M., Immer, A., **Chen, A.B.**, Li, P., Petkova, M., Iyer, N., Hesselink, L., Dev, A., Ihrke, G., Park, W., Petruncio, A., Weigel, A., Korff, W., Engert, F., Lichtman, J., Ahrens, M., Januszewski, M., Jain, V. 2025. **ZAPBench: A Benchmark for Whole-Brain Activity Prediction in Zebrafish**. *Accepted, The Thirteenth International Conference on Learning Representations*.
- Gorko, B., Siwanowicz, I., Close, K., Christoforou, C., Kabra, M., Lee, A., Park, J.Y., Li, S.Y., **Chen, A.B.**, Namiki, S., Chen, C., Tuthill, J., Bock, D., Rouault, H., Branson, K., Ihrke, G., Hibbard,

- K., Huston, S. 2024. **Motor neurons generate pose-targeted movements through proprioceptive sculpting.** *Nature*, 628(8008), pp.596-603.
- Deb, D., Jiao, Z., Sims, R.R., **Chen, A.B.**, Broxton, M., Ahrens, M., Podgorski, K. and Turaga, S.C., **FourierNets enable the design of highly non-local optical encoders for computational imaging.** 2022. *Advances in Neural Information Processing Systems*.
 - Mi, X., Wang, M., **Chen, A.B.**, Lim, J., Wang, Y., Ahrens, M., Yu, G., 2022. **BILCO: An Efficient Algorithm for Joint Alignment of Time Series.** *Advances in Neural Information Processing Systems*.
 - Ling, D., Zhang, L., Saha, D., **Chen, A.B.** and Raman, B., 2023. **Adaptation invariant concentration discrimination in an insect olfactory system.** *eLife*.
 - Chen, X., Mu, Y., Hu, Y., Kuan, A.T., Nikitchenko, M., Randlett, O., **Chen, A.B.**, Gavornik, J., Sompolinsky, H., Engert, F., and Ahrens, M., 2018. **Brain-wide Organization of Neuronal Activity and Convergent Sensorimotor Transformations in Larval zebrafish.** *Neuron*. <https://doi.org/10.1016/j.neuron.2018.09.042>
 - Saha, D., Sun, W., Li, C., Nizampatnam, S., Padovano, W., Chen, Z., **Chen, A. B.**, Altan, E., Lo, R., Barbour, D., and Raman, B., 2017. **Engaging and disengaging recurrent inhibition coincides with sensing and unsensing of a sensory stimulus.** *Nature Communications*. 8, 15413 doi: 10.1038/ncomms15413.

Reviews

- **Chen, A.B.**, Duque, M. and Engert, F., 2023. **Seeing stars: Astroglia modulate visual circuits during behavioral-state transitions.** *Neuron*, 111(24), pp.3903-3905.

AWARDS

- MIT J. Douglas Tan Postdoctoral Fellowship (2026)
- NIH Outstanding Scholar in Neuroscience (2025)
- Grass Fellowship (2025)
- NSF Graduate Research Fellowship (2019 – 2024)
- University of Utah Rising Stars in Neuroscience (2023)
- Finalist, Paul and Daisy Soros Fellowship (2018)
- Finalist, Hertz Fellowship (2018)
- Phi Beta Kappa (2018)
- 2016 Astronaut Foundation Scholar
- 2017 Barry M. Goldwater Scholarship Honorable Mention
- Max Planck Florida NeuroMEETS, selected speaker, 2025
- Cold Spring Harbor Innovators Symposium, selected speaker, 2025
- WUSTL INSPIRE Symposium, selected speaker, 2023
- Janelia Graduate Research Fellowship (2021 – 2023)
- 2018 Dean Ralph S. Quatrano Thesis Award
- 2018 Janelia Undergraduate Scholar
- 2017 Janelia Undergraduate Scholar
- 2016 WUSTL Biology Summer Undergraduate Research Fellowship

TEACHING

Primary instruction

- Instructor and co-course designer. **NB 314QC: Mathematical Tools for Neuroscience**. Winter 2020. Designed lectures, created course materials, and coordinated with faculty with a fellow first-year graduate student for this pilot course. This was the first introductory math course offered by the Program in Neuroscience and was developed by the program into NB314QC: Mathematical Tools for Neuroscience for Winter 2021.

Teaching assistance

- Teaching Fellow. **NB 215: Discipline of Neuroscience**. Fall 2024. Required introductory course for all incoming Harvard Program in Neuroscience PhD students. 28 students.
- Teaching Fellow. **MCB 80: Neurobiology of Behavior**. Fall 2024. 300 students.
- Teaching Fellow. **GenEd 1125: Artificial and Natural Intelligence**. Spring 2024. General education course for Harvard Undergraduate Students covering artificial and biological intelligence. 77 Students.
- Teaching Fellow. **NB 215: Discipline of Neuroscience**. Spring 2024. Required introductory course for all incoming Harvard Program in Neuroscience PhD students. 30 students.
- Teaching Fellow. **NB 314QC: Mathematical Tools for Neuroscience**. Winter 2021. 25 students
- Teaching Fellow. **NB 215: Discipline of Neuroscience**. Fall 2020 and Spring 2021. Required introductory course for all incoming Harvard Program in Neuroscience PhD students. 22 students.
- Teaching Fellow. **MCB 80: Neurobiology of Behavior**. Fall 2020. 200 students.
- Teaching Assistant. **Chem 482: Biochemistry II**. Spring 2018. 76 students.
- Teaching Assistant. **Bio 3058: Physiological Control Systems**. Spring 2018. 350 students.
- Teaching Assistant, **Bio 404: Laboratory of Neurophysiology** (upper division lab required for all neuroscience majors). Fall 2017. 18 Students.
- Teaching Assistant, **Bio 181: Freshman Seminar in Biology**. Fall 2017. 36 students.
- Teaching Assistant, **Chem 261: Organic Chemistry I**. Fall 2017. ~200 students.
- Teaching Assistant, **Bio 3058: Physiological Control Systems**. Spring 2017. One of 5 new TAs hired from a pool of 69 applicants; 363 students.
- Laboratory Teaching Assistant, Summer 2016, **Bio 2970: Principles of Biology II**. Summer 2016, 20 students.
- Leader, **Calculus III Peer-led team learning**. Fall 2015 – Fall 2017. Paid tutoring. Groups of 10-12 students.

OUTREACH ACTIVITIES

- Peer Mentor. Harvard Program in Neuroscience NSF GRFP Mentorship Program. 2021,2023
Mentored four graduate students (2 in 2021 and 2 in 2023) by giving them information regarding applying to the NSF GRFP fellowship. Read and provided feedback over multiple rounds of personal and research statement writing.
- Instructor. Janelia-Howard University Laboratory for Neuroscience. 2023

Worked with Dr. Dominique Pritchett (Howard University) to create course materials and build behavioral rigs for undergraduate students taking a laboratory course. Worked with undergraduate students on-site at Howard University to design and implement behavioral experiments.

- Healthcare Professions Recruitment and Exposure Program (HPREP), Program Management Director.

HPREP offers opportunities to students from disadvantaged backgrounds to learn about healthcare and scientific careers.

Program Management Director interfaces with other HPREP teams and works on logistical issues.

- *Journal of Emerging Investigators (JEI)*, Associate Editor.

JEI provides an open-access avenue for high school students to publish original research.

Associate editor works closely with students and organizes peer-review feedback.

- Washington University Chemistry Tournament, Founding Co-Chair of Question-Writing Committee. Fall 2015 – Spring 2017.

Helped start a national chemistry competition for high school students (30-50 teams, 180 – 300 competitors).

Worked with faculty of the WUSTL Department of Chemistry to write competition questions spanning a general chemistry curriculum.

Helped start an after-school chemistry tutoring program for disadvantaged high schools in St. Louis.

- Program Leader, Campus YMCA Science Olympiad Coaching. Fall 2015 – Spring 2017.

Worked with middle-school faculty to link undergraduate mentors with middle school students (60 students) passionate about science.

Helped form and prepare middle school team for the Science Olympiad competition.

- JCUBES undergraduate biology journal club, officer. Spring 2015 – Spring 2017.

Organized bi-weekly student research presentations.

Organized a student-run speaker event inviting Dr. Stuart Firestein (Columbia) to speak about his career and research.

- Strive for College, curriculum director. Fall 2017 – Spring 2018.

Partnered with underserved St. Louis school to mentor students from middle school to 12th grade.

Tailored curriculum to specific student needs, such as college application help or standardized test preparation.