

Himanshu Ahuja

Brain and Cognitive Sciences Department
University of Rochester
Meliora Hall, 775 Library Road
Rochester NY 14627

email: himahuja8@gmail.com
Research group:
haptic-perception-lab.org/


EDUCATION

- 2019–June 2025 **PhD Student in Brain and Cognitive Science**, University of Rochester
(Expected) **Advisor:** Dr. Manuel Gomez-Ramirez (Haptics Lab)
Featured Coursework: Sensory Systems, Neuron Circuit and Systems, Cellular Neuroscience, Advanced Computational Neuroscience
- 2015–2019 **B.Tech in Computer Science**, Delhi Technological University, New Delhi
Featured Coursework: Visual Perception and Brain, Computer Vision, Artificial Intelligence, Simulation & Modeling, Pattern Recognition, Distributed Systems

SPECIALIZED COURSES

- 2025 Data Analytics in the Public Sector, University of Michigan (*Coursera*)
- 2025 Managerial Economics and Business Analysis, Geis School of Business, UIUC (*Coursera*)
- 2024 National Environmental Law and Policy – Audited at University of Rochester
- 2024 International Environmental Law and Policy – Audited at University of Rochester
- 2023 Climatedata Academy: Tools for Climate Science Summer School
- 2022 Neural Data Without Borders: NWB User Days at the HHMI Janelia Research Campus
- 2020 Neuromatch Academy Computational Neuroscience Summer School

RESEARCH EXPERIENCE

- 2018 **Research Intern**, UCLA Institute for Pure & Applied Mathematics (IPAM) & Praedicat Inc. Mentors: *Dr. Stephen DeSalvo, Dr. Susana Serna*.
Designed a novel logic-based algorithm, for computational fact-checking on Knowledge Graphs. Our team constructed a self-supervised extraction, classification and fact-checking framework for credibility inference.  [himahuja/pcatxcore](https://github.com/himahuja/pcatxcore)
- 2017–2018 **Research Intern**, Defense Research & Development Organization, India. Supervisor: *Dr. Gurjit Walia*. Designed a novel fusion strategy combining multiple image features, updated on every frame using a fuzzy SVM model and tree-bagging. Tested performance of the proposed algorithm against other state-of-the-art architectures on the VOT-2016 and OTB-50/100 benchmark.

GRANTS, FELLOWSHIPS AND AWARDS


- 2022 [Donald M. and Janet C. Barnard Fellowship](#) from School of Arts Science and Engineering at University of Rochester for strong a research record as well as clear commitment to mentoring, outreach and service.
- 2021 NRT-DESE: Graduate Training in Data-Enabled Research into Human Behavior and its Cognitive and Neural Mechanisms, Conference Attendance Grant to World Haptics Conference 2021, Award ID: [1449828](#)
- 2019 RIPS-NSF Intern Fellowship. Project: “Computational Fact-Checking through Relational Similarity based Path Mining”. **Ahuja H**, Michels AC. Award ID: [DMS-0931852](#).
- 2018 “Gradient based Boundary Attack for Targeted Adversarial Perturbations”, Adversarial Vision Competition: Targeted Adversarial Attacks, NeurIPS’18 (Top-10 Submissions), [Leaderboard](#), Team [babahooja](#)

PUBLICATIONS









PEER-REVIEWED

- 2023 “Flexible Perception of Tactile Motion in Multiple Reference Frames”, Current Biology (Under Review), **Ahuja H**, Sabyasachi Shivkumar, Ralf M. Haefner, Gregory C. DeAngelis, Manuel Gomez-Ramirez. Preprint at [bioRxiv](#)
- 2019 “Unified Graph Based Multi-Cue Feature Fusion for Robust Visual Tracking” IEEE Transactions on Cybernetics, Walia GS*, **Ahuja H***, Kumar A, Bansal N, Sharma K, doi:[10.1109/TCYB.2019.2920289](#)
- 2018 “Supported Matrix Factorization using Distributed Representations for Personalized Recommendations on Twitter”, 2018 Computer & Electrical Engineering, Vol. 71, Elsevier, pp. 569-577, Kumar A*, **Ahuja H***, Singh NK, Gupta D, Khanna A., Rodrigues JPC, doi:[10.1016/j.compeleceng.2018.08.007](#)





PEER-REVIEWED CONFERENCE PROCEEDINGS

- 2021 “Tactile Motion Coordinate Transforms in the Somatosensory System”, Work-in-Progress Paper, World Haptics Conference 2021, **Ahuja H**, Haefner RM, DeAngelis GC, Gomez-Ramirez M. doi:[10.1109/WHC49131.2021.9517191](#), 
- 2018 “Breast Cancer Detection using Low-Computation-Based Collaborating Forward-Dependent Neural Networks”, 2018 Advances in Data Info. Sciences, Notes in Network Systems, vol.39 Springer, Singapore, Sanwal K, **Ahuja H**, doi:[10.1007/978-981-13-0277-0_9](#)
- 2017 “Detection of Malicious Transactions in Databases using Dynamic Sensitivity and Weighted Rule-Mining”, 2017 IEEE ICIECS, Coimbatore, India 2017, pp. 1-8, Singh I, Sareen S, **Ahuja H**, doi:[10.1109/ICIECS.2017.8276084](#)

POSTERS

- 2024 “Neural basis of coordinate transformations of tactile motion stimuli on the hand”, Society for Neuroscience 2024, Chicago 
- 2024 “Neural basis of coordinate transformations of tactile motion stimuli on the hand”, Simian Collective, Pittsburgh, PA 
- 2023 “Neural interactions between motion and proprioception in touch”, Society for Neuroscience 2023, Washington D.C. 
- 2022 “Neural computational models underlying coordinate transforms of motion representations in touch”, Society for Neuroscience 2022, San Diego, California 
- 2022 “Coordinate Transforms Mediating Tactile Motion Representations”, International Multi-sensory research forum 2022, Ulm, Germany 
- 2021 “Multisensory interactions mediating motion perception on the hand”, University of Rochester Medical Center Summer Poster Session 2021. 
- 2020 “How does previous trial experience affect neural activity in different brain regions? Steinmetz Dataset”, Neuromatch Academy 2020 
- 2020 “Coordinate transform mechanisms mediating tactile motion representations on the hand”, Center for Visual Science Retreat Poster Session, University of Rochester
- 2020 “Exploring simulation-based inference methods for model fitting – Case Study on Sequential Neural Posterior Estimation”, Data Science Colloquium, University of Rochester
- 2019 Computational Fact-Checking through Relational Similarity based Path Mining”, [AMS Contributed Paper](#) Session at Joint Mathematical Meet’19, 

PRESENTATIONS


- 2023 “Flexible representations of tactile motion with the hand”, Fourth-Year Lunch Talk at Brain and Cognitive Sciences Department at University of Rochester 
- 2022 “Coordinate Transforms Mediating Tactile Motion Representations with the Hand”, International Multi-sensory research forum 2022, Ulm, Germany 
- 2022 “Coordinate Transforms Mediating Tactile Motion Representations with the Hand”, Third-Year Lunch Talk at Brain and Cognitive Sciences Department at University of Rochester 
- 2020 “Coordinate transform mechanisms mediating tactile motion representations on the hand”, Neuromatch Conference, 
- 2019 “Machine Learning: The fad, and our responsibilities”, Women in Machine Learning

TEACHING

UNDERGRADUATE

- 2022 **Teaching Assistant**, BCS 245: Sensory and Motor Neuroscience, Prof. Gregory DeAngelis, University of Rochester
Conducted a series of workshops on topics of sensory representations, neural coding, linking neural representations to behavior, motor planning and decision-making.
- 2021 **Teaching Assistant** BCS111: Introduction to Cognitive Sciences, with Martin Yang, University of Rochester
- 2021 **Teaching Assistant** BCS247/547: Introduction to Computational Neuroscience, Prof. Haefner RM, University of Rochester
- Created course material and instructed lectures on Deep Learning and Neuroscience.
 - Conducted weekly recitations – neural modeling, encoding, decoding, probabilistic inference, deep learning.
 - Designed and modified assignments, organized lecture materials, helped students with Python and MATLAB programming.

MENTORING

- 2021 Mentored a visiting student for her summer research internship at University of Rochester. She successfully presented the work at Society for Neuroscience Conference 2021, 
- 2021 **NeuroEast Program**: Engaged with high school students from East High School, Rochester – providing them hands-on laboratory and research experience in collaboration with the Haptics Lab.

ACADEMIC SERVICE & OUTREACH

- 2024 **Co-Organized All Living Things Environmental Film Festival** Worked as an intermediary between All Living Things non-profit and University of Rochester Engineers Without Borders to host an environmental film screening. Attended by over 50 undergraduates.
- 2024 **Lead the financial health survey for Brain and Cognitive Sciences Department** Collected, analyzed, reported and presented data and solutions on the financial health of graduate students in my department. Currently working with faculty to establish mentorship standards, and training self-assessments.
- 2024– **Curriculum Design Working Group, Climatedatch Academy** Provided recommendations on course materials based on attendance as a student in the previous cycle. Currently contributing to their Python pre-course in collaboration with Pythia Foundation.

- 2023– **Volunteer, Citizens’ Climate Lobby** Participated in lobby meetings with congress persons and NY elected officials. Wrote [policy one-pagers](#), agenda asks and follow-ups to staff members. Participated in lobby meetings with • Rep. Joe Morelle (*primary asker* in multiple meetings [1][2]) • Assembly member Harry Bronson (*primary asker*) • Rep. Gregory Meeks (*secondary asker* and *note-taker*) • Rep. Mike Lawler • Rep. Ayanna Pressley.
- 2022– **Founding Member, Graduate Student Collective:** Started with the goal to improve the financial conditions of graduate students, with the broader mission of building a real graduate student representation at the University. Participated in meetings with the University administration. Analyzed and reported financial health data of graduate students across the University. Designed graphics and ran poster drives. Efforts have now lead into a Union card-signing campaign.
- 2021–2022 **Member at Rochester Mutual Aid Network** Packing and distributing leftover food from the Public Market at Rochester. Co-organized multiple donation drives. Collaborated with Saint’s Place in organizing a donation drive to house Afghan refugees relocating to Rochester.
- 2021–2022 **Meliora Student Mentor**, Brain and Cognitive Sciences Department, University of Rochester . Organized career development workshops and student panels for over forty undergraduate summer students. Guest lecture on networking in the Senior Student Seminar (BCS311, Fall 2021)
- 2021–2022 **Diversity Officer**, Graduate Student Association, University of Rochester Organized a safe-space certification program for graduate students. Facilitated a collaborative learning space on Diversity, Equity and Inclusion, while reading Dr. Ibram X. Kendi’s book – “Stamped from the beginning”.
- 2021–2022 **Graduate Student Member**, Brain and Cognitive Sciences Department, Diversity & Inclusion Committee. Worked with the committee to accumulate and organize DEI resources for the department website.
- 2019– **Undergraduate Internship Repository Manager**, Maintain a Github repository for undergraduate internships that has helped thousands of undergraduates to apply for research internships [🔗 himahuja/Research-Internships-for-Undergraduates](#)
- 2020–2021 **Academic Programming Officer**, Graduate Student Association, University of Rochester . Re-structured the travel grants and increased accessibility to students during the COVID-19 pandemic. Organized attendance and university funding for the *Genius Retreat*.
Lead an informal discussion group on anti-racism for graduate students (Fall 2020). Organized and co-facilitated an [official reading group on anti-racism](#) with the Library, reading Dr. Ibram X. Kendi’s book – “How to be an anti-racist” (Spring 2021)
- 2014–2015 **Head of Student Union**, Bal Bharati Public School, Dwarka. Established a grievance portal; organized cultural events; chaired and organized Model United Nation Conference.

2015–2016 **Asst. Director & Writer**, [College Theatre Society, Delhi Technological University](#). Assisted in direction and acted in two year-round street plays on National Security and National Integration. Our theatre group won at over 30 prestigious shows all across the Indian Theatre Circuit.

2013–2015 **Sargent at Arms**, Interact Club, Rotary International. Managed funds and exchanges of the club; Organized blood donation, book donation and cloth donation drives.

2013–2014 **Student Head**, New Delhi, Teach for India Campaign, Times of India. Went to slums to aware less privileged to study communicative English for jobs; taught basic-level English language classes.

2013–2014 **Environment Ambassador for New Delhi**, Kids for Tigers, Sanctuary Asia. Presented at seminars, performed plays, and campaigned to promote tiger & environment conversation. Earned a diploma from Lund University in Environment Sustainability (Magna Cum Laude).

LANGUAGES

• English (*C2*, Native Proficiency) • Hindi (*C2*, Native Proficiency) • Spanish (*A2*, Basic reading and writing) • Punjabi (*B1*, Fluent)