

Ainul Huda

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EDUCATION

Virginia Tech, Blacksburg VA.

- Ph.D in Neuroscience Aug 2022 – Present
 - **Project:** Determining critical protein domains to understand molecular mechanism required for temperature sensing in *Drosophila*.
 - **Coursework:** Principals of Neuroscience, Neuroanatomy and Systems Neuroscience, Cellular Neuroscience, Advanced Genetics in Neuroscience, Statistics in Research, Diseases of the Nervous System
- Future Professoriate Certificate Aug 2022 – May 2024
 - **Coursework:** Preparing Future Professoriate, Pedagogical Practices in Contemporary Contexts, Communicating Science

University of Washington, Seattle WA.

- B.S in General Biology Sep 2009 – Mar 2013
 - **Coursework:** Advanced Chemistry, Organic Chemistry Laboratory, Cellular and Molecular Biology, Microbiology, Animal Behavior and Genetics, Calculus, and French

PUBLICATIONS

- Huda, A., Vaden, T. J., Bai, H., Rawls, R. T., Peppers, R. J., Monck, C. F., Holley, H. D., Castandea, A. N., Ni, L., “Behavioral Assays for Optogenetic Manipulation of Neural Circuits in *Drosophila melanogaster*”. **JoVE**, 2025.
- Castaneda, A. N., Huda, A., Whitaker, I. B. M., Reily, J. E., Shelby, G. S., Ni, L., “Functional labeling of individualized postsynaptic neurons using optogenetics and trans-Tango”. **PLOS Genetics**, 2024.
- Fu, Z., Huda, A., Kimbrough, I. F., Ni, L., “Using *Drosophila* Two-Choice Assay to Study Optogenetics in Hands-On Neurobiology Laboratory Activities”. **Journal of Undergraduate Neuroscience Education**, 2023.
- Huda, A., Omelchenko, A. A., Vaden, T. J., Castaneda, A. N., Ni, L., “Responses to Temperature Changes of Different *Drosophila* Species”. **Journal of Experimental Biology**, 2022.
- Chongtham, A., Yoo, J. H., Chin, T. M., Akingbesot, N. D., Huda, A., Khoshnan, A., Dickinson, M., “Gut bacteria regulate the pathogenesis of Huntington’s disease in *Drosophila*”. **Journal of Neurobiology of Disease**, 2022.
- Dickerson, B. H., de Souza, A. M., Huda, A., Dickinson, M., “Flies Regulate Wing Motion via Active Control of a Dual-Function Gyroscope” **Current Biology**, 29, 20: 3517-3524 2019.
- Van Breugel, F., Huda, A., Dickinson, M. H., “Distinct activity-gated pathways mediate attraction and aversion to CO₂ in *Drosophila*” **Nature**, 564: 420-424 2018.
- Suver, M., Huda, A., Iwasaki, N., Safarik, S., Dickinson, M. H., “An Array of Descending Visual Interneurons Encoding Self-Motion in *Drosophila*” **Journal of Neuroscience**, 36:11768 –11780 2016.

TEACHING EXPERIENCE

Neuroscience Instructor, VT Summer Science Camp, Virginia Tech, Blacksburg, VA.

June – July 2023, 2024, 2025

- Developed a curriculum and led activities that introduced fruit flies as model organisms, covering anatomy and genetics. Led “Explore Science” camps for rising 7th-8th graders, “Exploring Science” camps for rising 10th-11th graders, and “Exploring Life Science” camps for rising 11th-12th graders.

Lab Course Developer and Instructor, Virginia Tech, Blacksburg, VA

Jan 2025 – May 2025,

- Neur 3984: Cellular and Molecular Neuroscience Laboratory
- Developed and delivered three laboratory modules, created instructional materials, prepared lab equipment and supplies, and led hands-on sessions, integrating theoretical concepts with practical neuroscience techniques for students.

Guest Lecturer, Virginia Tech, Blacksburg, VA

Oct 2024

- Neur 4314: Genetics in Neuroscience

Conference on Higher Education Pedagogy, Virginia Tech, Blacksburg VA.

Feb 2024

- Attended sessions on instructional strategies, results, and research across disciplines.

Guest Lecturer, Virginia Tech, Blacksburg, VA

Oct 2023

- Neur 3044: Cellular and Molecular Neuroscience, Neur 2554: Experimental Neuroscience

- Neuroscience Teaching Conference**, Wake Downtown, Winston-Salem NC. Jul 2023
 - Attended sessions on developing an undergraduate neurodiversity course and exploring core neuroscience concepts.
- VTGrATE Teach In Day**, Virginia Tech, Blacksburg VA. Mar 2023
 - Attended a series of workshops and talks to improve teaching skills.
- Conference on Higher Education Pedagogy**, Virginia Tech, Blacksburg VA. Feb 2023
 - Attended sessions addressing disciplinary and interdisciplinary instructional strategies, outcomes, and research.
- VTGrATE Teach In Day**, Virginia Tech, Blacksburg VA. Nov 2022
 - Attended a series of workshops and talks to improve teaching skills.

**WORK
EXPERIENCE**

- Graduate Teaching Assistant**, Virginia Tech, Blacksburg VA.
 - Cellular and Molecular Neuroscience Jan 2024 – May 2024, Jan 2023 – May 2023
 - Intro to Neuroscience I Aug 2022 – Dec 2022
- Laboratory Technician**, Virginia Tech, Blacksburg VA. Sep 2020 – Aug 2022
 - Ni Lab, School of Neuroscience
- Supervisory Experience**
 - Train all new undergraduates, graduates, postdocs, and staff in *Drosophila* care, genetics, and experimental protocols.
- Projects**
 - Conducted behavioral experiments to identify *Drosophila* species for temperature sensing, using CRISPR to create chimeric flies to study molecular mechanisms.
- Laboratory Manager**, California Institute of Technology, Pasadena CA. Jan 2015 – Jul 2020
 - Dickinson Lab, The Division of Biology and Biological Engineering
- Supervisory Experience**
 - Interviewed, hired, trained, and managed lab staff; collaborated with students, faculty, and senior management.
- Managerial Experience:**
 - Managed lab operations, trained staff on *Drosophila* protocols, advised on projects, handled budgeting and purchases, coordinated lab schedules and events, and led administration of a multi-million dollar NIH grant across seven institutes.
- Projects**
 - Researching the role of the shakB gene in *Drosophila* flight muscles and leading studies on the functional anatomy differences between tonic and phasic flight muscles using electron microscopy.
- Building Coordinator/Emergency Responder**, California Institute of Technology, Pasadena CA. May 2016 – Jul 2016
 - Beckman Behavior Biology Building
 - Served as liaison between building occupants and emergency responders during evacuations, assisted with safety drills, and ensured labs adhered to safety protocols.
- Research Technologist I**, University of Washington, Seattle WA. Mar 2013 – Dec 2014
 - Dickinson Lab, Department of Biology
 - Conducted research on synaptic connections between vertical system cells in the lobula plate and octopaminergic neurons in the *Drosophila* brain, while maintaining lab assistant responsibilities.
- Student Lab Assistant**, University of Washington, Seattle WA. Nov 2011 – Mar 2013
 - Dickinson Lab, Department of Biology
 - Assisted with genetic crosses in *Drosophila*, dissected and prepared fly brains and thoracic ganglia for analysis, performed immunofluorescence staining, prepared chemical solutions, and conducted confocal microscopy.
- AWARDS & HONORS**
- Outstanding Doctoral Student**, College of Science, Virginia Tech, Blacksburg, VA. Mar 2025
 - This award recognizes the demonstrated excellence and achievements of an interdisciplinary doctoral student.
- F31 Predoctoral Fellowship**, National Institutes of Health (NIH). Jan 2025
 - Ruth L. Kirschstein NRSA Individual Predoctoral Fellowship for dissertation research on temperature sensation in *Drosophila* (FAIN: F31NS139648).
- First Place, Center for Communicating Science Nutshell Games 2024**, Virginia Tech, Blacksburg VA. Nov 2024
 - The Nutshell Games enables students to present their research in 90 seconds to a public audience and panel of judges.

- Kirk and Noel Schulz Transformative Graduate Education Fellowship 2024-2025**, Virginia Tech, Blacksburg VA. Sep 2024
- Supports students advancing the Transformative Graduate Education Initiative, which redefines traditional academic education and fosters innovative graduate experiences
- School of Neuroscience PhD Program Travel Award**, Virginia Tech, Blacksburg VA. Aug 2024
- Travel fellowship awarded to present data at scientific meetings.
- Center for the Integration of Research, Teaching and Learning (CIRTL) Associate Badge**, Virginia Tech, Blacksburg VA. Jul 2024
- Achievements gained through programming focused on foundational teaching knowledge and developing a teaching philosophy statement.
- Diversity Scholars 2024**, Virginia Tech, Blacksburg VA. Feb 2024
- My project improved campus inclusivity and accessibility by creating a comprehensive database and mapping system for lactation room resources, supporting parents and caregivers.
- Graduate and Professional Student Senate Travel Fund Program**, Virginia Tech, Blacksburg VA. Sep 2023
- Travel grant awarded to partially offset expenses associated with conference travel for graduate students.
- School of Neuroscience PhD Program Travel Award**, Virginia Tech, Blacksburg VA. Jul 2023
- Travel fellowship awarded to present data at scientific meetings.
- Academy for Outstanding Graduate Pedagogy**, Virginia Tech, Blacksburg VA. Oct 2022
- Member, participating in teaching workshops and mentorship programs.
- Howard Hughes Medical Institute Integrative Research Award**, University of Washington, Seattle, WA. Aug 2012
- Full-time paid internship. Presented research at UW-HHMI symposia and outreach events; participated in weekly research seminars.
- Invited talk, 15th Annual University of Washington Undergraduate Research Symposium**, University of Washington, Seattle, WA. May 2012
- Anatomical Characterization of Genetically-Identified Neuron Populations in *Drosophila*
- Howard Hughes Medical Institute Biology Fellow**, University of Washington, Seattle, WA. Sep 2010

SERVICE

- Graduate Program Committee Student Representative**, School of Neuroscience, Virginia Tech, Blacksburg VA Aug 2025
- Attended monthly meetings, reviewed graduate applications, assisted with recruitment efforts, and conducted pre-interviews for prospective students
- Invited Panelist**, Virginia Tech, Blacksburg VA Apr 2025
- Served on a panel, "Enhancing the Virginia Tech Community through Student-Led Research and Project Initiatives" to talk about my community scholar project and the importance of project initiatives
- Invited Panelist, Graduate Student Panel**, Graduate Teaching Assistant Workshop, Virginia Tech, Blacksburg VA Aug 2024
- Served on a panel to answer student questions about being a GTA and graduate school
- Advisory Committee**, Center for the Integration of Research, Teaching, and Learning (CIRTL), Virginia Tech, Blacksburg VA Nov 2023 – Present
- Provide vital perspectives and guidance on recently launched Associate Badge Program
- Treasurer**, Central Virginia Chapter of the Society for Neuroscience, VA Aug 2023 – Jun 2024
- Manage an annual meeting in Spring of 2024
- Reviewer**, Graduate and Professional Student Senate Travel Fund Program, Virginia Tech, Blacksburg VA Nov 2023
- Reviewed applications for the Winter 2023 travel cycle

OTHER EXPERIENCE

- Family Council**, Ready Region Southwest, United Way of Southwest Virginia, VA Oct 2022 – Present
- Coordinated early childhood care and education services by serving on the parent advisory board and handling on-call media relations.
- Group Fitness Instructor–Zumba**, YMCA, South Pasadena CA Jun 2018 – Jul 2020
- Instructs Zumba classes of 20-30+ students at the San Marino, South Pasadena YMCA branch.

Zumba Instructor, California Institute of Technology, Pasadena CA Aug 2017 – Jul 2020

- Instructs a weekly Zumba class of 20+ students at the Caltech Braun Athletic Center.

Volunteer, University of Washington Medical Center, Seattle WA

- ICU Assistant, 160+ Hours Jun 2010 – Nov 2011
 - Assisted with patient admissions, procedures, dressing changes, and turns; restocked carts, managed room setup/cleanup, ordered materials, answered phones, and handled front desk duties.
- Patient Escort, 65+ Hours Mar 2010 – Jun 2010

CERTIFICATION **Future Professoriate Graduate Certificate**, Virginia Tech Aug 2022 – May 2024

- Courses include
 - Preparing Future Professoriate, Pedagogical Practices in Contemporary Contexts, and Communicating Science

Zumba® Basics I Instructor Certification, Zumba Fitness LLC. Aug 2017 – Present

AFAA Certified Group Fitness Instructor, AFAA-CGFI License #1170067855 Mar 2017 – Present

American Red Cross Adult CPR/AED, Pediatric CPR and First Aid. #GXDAUB Mar 2019 – Present

LANGUAGES **English and Urdu:** Native language **French:** Intermediate (speaking, reading, writing)