

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

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

Neuroscience Instructor, VT Summer Science Camp, Virginia Tech and Wake Forest.

2023 , 2024

- 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.

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. <ul style="list-style-type: none"> Supports students advancing the Transformative Graduate Education Initiative, which redefines traditional academic education and fosters innovative graduate experiences 	Sep 2024
	School of Neuroscience PhD Program Travel Award , Virginia Tech, Blacksburg VA. <ul style="list-style-type: none"> Travel fellowship awarded to present data at scientific meetings. 	Aug 2024
	Center for the Integration of Research, Teaching and Learning (CIRTL) Associate Badge , Virginia Tech, Blacksburg VA. <ul style="list-style-type: none"> Achievements gained through programming focused on foundational teaching knowledge and developing a teaching philosophy statement. 	Jul 2024
	Diversity Scholars 2024 , Virginia Tech, Blacksburg VA. <ul style="list-style-type: none"> My project improved campus inclusivity and accessibility by creating a comprehensive database and mapping system for lactation room resources, supporting parents and caregivers. 	Feb 2024
	Graduate and Professional Student Senate Travel Fund Program , Virginia Tech, Blacksburg VA. <ul style="list-style-type: none"> Travel grant awarded to partially offset expenses associated with graduate student conference travel. 	Sep 2023
	School of Neuroscience PhD Program Travel Award , Virginia Tech, Blacksburg VA. <ul style="list-style-type: none"> Travel fellowship awarded to present data at scientific meetings. 	Jul 2023
	Academy for Outstanding Graduate Pedagogy , Virginia Tech, Blacksburg VA. <ul style="list-style-type: none"> Member, participating in teaching workshops and mentorship programs. 	Oct 2022
	Howard Hughes Medical Institute Integrative Research Award , University of Washington, Seattle, WA. <ul style="list-style-type: none"> Full-time paid internship. Presented research at UW-HHMI symposia and outreach events; participated in weekly research seminars. 	Aug 2012
	Invited talk, 15th Annual University of Washington Undergraduate Research Symposium , University of Washington, Seattle, WA. <ul style="list-style-type: none"> Anatomical Characterization of Genetically-Identified Neuron Populations in <i>Drosophila</i> 	May 2012
	Howard Hughes Medical Institute Biology Fellow , University of Washington, Seattle, WA.	Sep 2010
SERVICE	Graduate Student Panel , Graduate Teaching Assistant Workshop, Virginia Tech, Blacksburg VA <ul style="list-style-type: none"> Served on a panel to answer student questions about being a GTA and graduate school. 	Aug 2024
	Advisory Committee , Center for the Integration of Research, Teaching, and Learning (CIRTL), Virginia Tech, Blacksburg VA <ul style="list-style-type: none"> Provide vital perspectives and guidance on recently launched Associate Badge Program 	Nov 2023 – Present
	Treasurer , Central Virginia Chapter of the Society for Neuroscience, Blacksburg VA <ul style="list-style-type: none"> Manage an annual meeting in Spring of 2024 	Aug 2023 – Present
	Reviewer , Graduate and Professional Student Senate Travel Fund Program, Virginia Tech, Blacksburg VA <ul style="list-style-type: none"> Reviewed applications for the Winter 2023 travel cycle 	Nov 2023
OTHER EXPERIENCE	Family Council , Ready Region Southwest, United Way of Southwest Virginia, VA <ul style="list-style-type: none"> Coordinated early childhood care and education services by serving on the parent advisory board and handling on-call media relations. 	Oct 2022 – Present
	Group Fitness Instructor–Zumba , YMCA, South Pasadena CA <ul style="list-style-type: none"> Instructs Zumba classes of 20-30+ students at the San Marino, South Pasadena YMCA branch. 	Jun 2018 – Jul 2020
	Zumba Instructor , California Institute of Technology, Pasadena CA <ul style="list-style-type: none"> Instructs a weekly Zumba class of 20+ students at the Caltech Braun Athletic Center. 	Aug 2017 – Jul 2020
	Volunteer , University of Washington Medical Center, Seattle WA <ul style="list-style-type: none"> ICU Assistant, 160+ Hours <ul style="list-style-type: none"> 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 	Jun 2010 – Nov 2011 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
LANGUAGES	American Red Cross Adult CPR/AED , Pediatric CPR and First Aid. #GXDAUB	Mar 2019 – Present
	English and Urdu : Native language	
	French : Intermediate (speaking, reading, writing)	