

# 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
- 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

- 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 CO<sub>2</sub> 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

**Guest Lecturer**, Virginia Tech, Blacksburg, VA

Oct 2024

- Neur 4314: Genetics in Neuroscience

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

Jun 2024 – Jul 2024

- “Fresh off the Fruits: Fly anatomy and more!” Created curriculum and conducted activities for the science camp including introduction of fruit flies as model organism, anatomy, and fly genetics.
  - “Explore Science” camp for rising 7th-8th graders
  - “Exploring Science” camp for rising 10th-11th graders
  - “Exploring Life Science” camp for rising 11th-12th graders

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

Feb 2024

- Attended sessions addressing disciplinary and interdisciplinary instructional strategies, outcomes, and research.

**Guest Lecturer**, Virginia Tech, Blacksburg, VA

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

Jan 2024

Oct 2023

**Neuroscience Teaching Conference**, Wake Downtown, Winston-Salem NC.

Jul 2023

- Attended sessions including “Development of an undergraduate neurodiversity course” and “Unpacking core neuroscience concepts”.

## WORK EXPERIENCE

- Neuroscience Instructor, VT Summer Science Camp**, Virginia Tech, Blacksburg VA. Jun 2023 – Jul 2023
- "Fresh off the Fruits: Fly anatomy and more!" Created curriculum and conducted activities for the science camp including introduction of fruit flies as model organism, anatomy, and fly genetics.
    - "Explore Science" camp for rising 7th-8th graders
    - "Exploring Life Science" camp for rising 11th-12th graders
- 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.
- Graduate Teaching Assistant**, Virginia Tech, Blacksburg VA.
- Cellular and Molecular Neuroscience Jan 2024 – May 2024, Jan 2023 – May 2023
    - Assisted in making lectures and exams, held office hours, and grading.
  - Intro to Neuroscience I Aug 2022 – Dec 2022
    - Assisted with lab preparation, in-person labs (answered questions and checked student progress/completion) and held office hours.
- 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**
- Behavioral experiments to determine *Drosophila* model species for temperature sensing, using CRISPR to create chimeric flies that can be used to understand molecular mechanisms for temperature sensing.
- Laboratory Manager**, California Institute of Technology, Pasadena CA. Jan 2015 – Jul 2020
- Dickinson Lab, The Division of Biology and Biological Engineering
- Supervisory Experience**
- Interview, hire, train, and supervise all new staff in the lab.
  - Monitor the progress of lab members and facilitate smooth operations by conducting regular meetings/check-ins.
  - Experience working/collaborating with all levels of personnel, from grad students to faculty to senior management.
- Managerial Experience:**
- Responsible for setting up, organizing, and maintaining operational support for the lab.
  - Training all new lab members regarding *Drosophila* maintenance and experimental protocols.
  - Advising all lab members with their projects, responsible for lab purchases, budgeting, and fiscal support
  - Coordinating all lab-related events and schedules, including symposiums.
  - As the Lead administrator of a multi-million dollar NIH grant spanning seven institutes, I facilitated correspondence between all Principal Investigators and their labs and organized biennial multi-day symposiums.
- Projects**
- Researching the role of shakB gene in *Drosophila* flight muscles.
  - Leading research about the differences in the functional anatomy of tonic versus phasic flight muscles in *Drosophila* using electron microscopy.
- Building Coordinator/Emergency Responder**, California Institute of Technology, Pasadena CA. May 2016 – Jul 2016
- Beckman Behavior Biology Building
    - Liaison between the building occupants and emergency first responders during evacuations and emergency situations
    - Assist safety drills and ensure that labs follow required safety protocols
- Research Technologist I**, University of Washington, Seattle WA. Mar 2013 – Dec 2014
- Dickinson Lab, Department of Biology
    - Conducted research on the synaptic connection between vertical system cells in lobula plate of the optic lobe with octopaminergic neurons in the *Drosophila* brain
    - Maintained responsibilities of lab assistant

**Student Lab Assistant**, University of Washington, Seattle WA.

Nov 2011 – Mar 2013

- Dickinson Lab, Department of Biology
  - Assist in performing genetic crosses with *Drosophila*, dissecting, and preparing fly brains and thoracic ganglia for analysis. Also performed immunofluorescence staining protocols, preparing chemical solutions, and performing confocal microscopy

## AWARDS & HONORS

**Kirk and Noel Schulz Transformative Graduate Education Fellowship 2024-2025**, Virginia Tech, Blacksburg VA.

Sep 2024

- The VT Graduate School awards this fellowship to graduate students working towards the university-wide Transformative Graduate Education Initiative, which pushes the boundaries of traditional disciplinary academic education and provides the philosophical underpinnings for an innovative graduate education experience.

**School of Neuroscience PhD Program Travel Award**, Virginia Tech, Blacksburg VA.

Aug 2024

- Travel fellowship awarded to present data at scientific meetings.

**F31 Predoctoral Fellowship**, National Institutes of Health (NIH).

Aug 2024

- Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship to support dissertation research on temperature sensation in *Drosophila*, FAIN: F31NS139648

**Center for the Integration of Research, Teaching and Learning (CIRTL) Associate Badge**, Virginia Tech, Blacksburg VA.

Jul 2024

- Achievements were acquired by engaging in programming focused on foundational knowledge about teaching as well as writing a teaching philosophy statement.

**Diversity Scholars 2024**, Virginia Tech, Blacksburg VA.

Feb 2024

- Recognizes graduate students who champion diversity and inclusion initiatives, advocating for equity, inclusion, and diversity within the university community through various projects and activities.
- My project enhanced campus inclusivity and accessibility through the creation of a comprehensive database and mapping system for lactation room resources improving support for 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 graduate student conference travel.

**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

- Previously known as Virginia Tech Graduate Academy for Teaching Excellence (GrATE)
- Member status, VT teaching resource via teaching workshops and offers mentorship programs.

**Howard Hughes Medical Institute Integrative Research Award**, University of Washington, Seattle, WA.

Aug 2012

- Full-time paid internship. Presented research in various venues, including UW-HHMI symposia and outreach events, participated in a weekly research seminar.

**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

**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, Blacksburg VA

Aug 2023 – Present

- 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

- Ready Regions are responsible for on-the-ground coordination and integration of essential early childhood care and education (ECCE) services and resources
  - Served as parent advisory board and on-call media relations

	<b>Group Fitness Instructor–Zumba</b> , YMCA, South Pasadena CA	Jun 2018 – Jul 2020
	<ul style="list-style-type: none"> <li>▪ San Marino, South Pasadena YMCA branch</li> <li>• Instructs Zumba classes of 20-30+ students</li> </ul>	
	<b>Zumba Instructor</b> , California Institute of Technology, Pasadena CA	Aug 2017 – Jul 2020
	<ul style="list-style-type: none"> <li>▪ Caltech Braun Athletic Center</li> <li>• Instructs a weekly Zumba class of 20+ students</li> </ul>	
	<b>Volunteer</b> , University of Washington Medical Center, Seattle WA	
	<ul style="list-style-type: none"> <li>▪ ICU Assistant, 160+ Hours</li> <li>• Duties included observing medical procedures, assisting nurses with new admits, turns and dressing changes, restocking and maintaining bedside and isolation carts, room set up and stripping, ordering materials, answering phones and managing the front desk</li> </ul>	Jun 2010 – Nov 2011
	<ul style="list-style-type: none"> <li>▪ Patient Escort, 65+ Hours</li> <li>• Assisted medical staff, discharged patients, and specimen deliveries</li> </ul>	Mar 2010 – Jun 2010
<b>CERTIFICATION</b>	<b>Future Professoriate Graduate Certificate</b> , Virginia Tech	Aug 2022 – May 2024
	<ul style="list-style-type: none"> <li>▪ Courses include</li> <li>• Preparing Future Professoriate, Pedagogical Practices in Contemporary Contexts, and Communicating Science</li> </ul>	
	<b>Zumba® Basics I Instructor Certification</b> , Zumba Fitness LLC.	Aug 2017 – Present
	<b>AFAA Certified Group Fitness Instructor</b> , AFAA-CGFI License #1170067855	Mar 2017 – Present
	<b>American Red Cross Adult CPR/AED</b> , Pediatric CPR and First Aid. #GXDAUB	Mar 2019 – Present
<b>LANGUAGES</b>	<b>English and Urdu</b> : Native language	<b>French</b> : Intermediate (speaking, reading, writing)