

# MUHAMMAD ALI HAIDAR

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## PROFILE

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PhD Candidate & Research Associate with 4+ years of experience in experimental life sciences, data analysis, and translational research. Skilled in experimental life sciences research across neuroscience, molecular diagnostics, and pre-clinical studies. Proficient in Python and R for reproducible data processing and analysis. Experienced in project management, delivering research and digital health work under tight deadlines. Designed behavioral assays and analysis pipelines, and supervised Master students and interns.

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## EDUCATION

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- Freie Universität Berlin, Berlin** **Oct 2026**  
**Dr. rer. nat. Biology**  
Dissertation: Exploring the Relationship between Behavioral Individuality and Circuit Wiring in *D. melanogaster*
- American University of Beirut, Beirut** **Sept 2021**  
**Master of Science in Biochemistry**  
GPA: 3.97/4 | Thesis: Neuroprotective Effects of MitoQ in Open Head Traumatic Brain Injury
- University of Balamand, Beirut** **Sept 2016**  
**Bachelor of Science in Medical Laboratory Sciences**  
GPA: 3.49/4

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## EXPERIENCE

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- PhD Candidate & Research Associate, Freie Universitaet Berlin** **Apr 2022 to Jul 2026**  
Berlin
- Led experiments to investigate neural circuit mechanisms underlying behavioral individuality in *D. melanogaster* by designing and implementing robust behavioral assays for visual and non-visual responses.
  - Applied confocal microscopy and quantitative morphometric analysis to map circuit wiring and link structural differences to individual sleep and activity patterns.
  - Developed and maintained reproducible Python and R pipelines for behavioral and morphological data processing, analysis, and visualization.
  - Supervised and mentored Master students and interns in experimental design, data analysis, and thesis completion, and provided ongoing methodological guidance.
  - Delivered hands-on training in advanced neurobiological techniques for the developmental neuroscience course over three years.
- Technical Project Manager (Contract), LebMASH** **Feb 2025 to Aug 2025**  
Beirut
- Spearheaded the development of an AI-powered digital health platform to provide accessible medical information for women and marginalized communities in Lebanon.
  - Orchestrated qualitative research across 7 distinct demographics to define user requirements and ensure the platform addressed specific community health gaps.
  - Curated a database of evidence-based health resources, ensuring all digital content was culturally sensitive and technically optimized for the target audience.
  - Directed project milestones within a 6-month funding window, ensuring all deliverables and stakeholder reporting were completed on schedule.
- Research Assistant, American University of Beirut** **Aug 2021 to Feb 2022**  
Beirut
- Investigated pre-clinical drug candidates for open-head Traumatic Brain Injury (TBI) models, evaluating therapeutic efficacy in mitigating oxidative stress and secondary inflammatory pathways.
  - Executed a comprehensive battery of behavioral assays—including memory, learning, and anxiety paradigms—to quantify the neurobehavioral recovery of subjects post-treatment.
  - Performed high-resolution imaging and molecular analysis, utilizing genetic and protein expression techniques to validate drug impact on neuroinflammatory markers.
  - Authored a peer-reviewed publication based on project findings, contributing data visualization and technical analysis of the drug's mechanistic effects on secondary injury.

- Maintained rigorous animal surgical and care protocols, ensuring high-quality data collection within a standardized pre-clinical trial environment.

**Molecular Technologist, Lebanese Ministry of Public Health**

**Oct 2020 to Sept 2021**

Beirut

- Processed high-volume diagnostic samples at the national level for all international entries into Lebanon, ensuring rapid turnaround times during the COVID-19 pandemic.
- Executed end-to-end molecular diagnostic protocols, including automated and manual RNA extraction and RT-qPCR for viral detection.
- Maintained strict biosafety and quality control standards in a high-throughput laboratory environment to ensure 100% diagnostic accuracy and data integrity.
- Collaborated with a multidisciplinary team to streamline sample intake and reporting workflows, managing the surge in national testing demands.

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## SKILLS

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- Leadership and Mentoring
- Behavioral and Molecular Techniques
- Interdisciplinary Teamwork
- Cross-Functional Collaboration
- Confocal Microscopy
- Communication
- Pre-clinical Drug Discovery
- Data Analysis (R, Python)
- EEG

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## LANGUAGES

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English, Arabic

### Publications

[Google Scholar](#)