Manwal Harb

(512) 804-6196 | mmh10@rice.edu

EDUCATION:

Ph.D. in Bioengineering, *Rice* University, Expected 2024
B.S. in Biomedical Engineering, *The University of Texas at Austin*, 2019
A.S. in Engineering, *Austin Community College*, 2017

RESEARCH EXPERIENCE:

Graduate Student, 01/2020 – Present
Dept. of Bioengineering, Rice University
Principal Investigator: Dr. Jerzy Szablowski

- Developing a high-resolution, noninvasive and spatially-specific gene delivery method.
- Developing protocols for transcranial focused ultrasound application.

Undergraduate Research Assistant, 11/2017 – 8/2019
Dept. of Biomedical Engineering, The University of Texas at Austin
Principal Investigator: Dr. Shelly Sakiyama-Elbert

- Developed a protocol to induce & enrich mouse embryonic stem cells into V0 interneurons
- Conducted immunocytochemistry, flow cytometry and qPCR for data collecting & analysis
- Utilized molecular cloning techniques such as reverse transcription, PCR, bacterial transformations and DNA/RNA extraction

ACHIEVEMENTS, HONORS & AWARDS:

- NSF Graduate Research Fellow, Starting in Fall 2021
- NSF Research Traineeship (NRT) in Bioelectronics, Fall 2020 – Present
- Graduated with High Honors from UT Austin, Spring 2019
- University Honors & Engineering Scholar Distinction at UT Austin, Fall 2016 – Spring 2019
- President's Honor Roll at Austin Community College, Fall 2014 – Spring 2016
- Alpha Eta Mu Beta Biomedical Engineering Honor Society, Fall 2018 – Spring 2019
- Phi Theta Kappa Honors Society, Fall 2015 – Spring 2016
- Cullen Trust for Higher Education Endowed Scholarship, Fall 2018 - Spring 2019
- Leslie and Jack Bergeron Endowed Presidential Scholarship, Fall 2017 - Spring 2019
- Wells Fargo Team Members' Dependent Children Scholarship, Fall 2017 - Spring 2019
- Phi Theta Kappa Scholarship, Spring 2016
- T-STEM Scholarship, Spring 2015 - Spring 2016
- ACC Foundation General Scholarship, Fall 2014 - Spring 2016

PUBLICATIONS:

Szablowski, Jerzy O. and **Manwal Harb**. "Focused Ultrasound Induced Blood-Brain Barrier Opening for Targeting Brain Structures and Evaluating Chemogenetic Neuromodulation." *Journal of Visuaizedl Experiments, 2020.* (166), e61352.

Pardieck, Jennifer, **Manwal Harb**, and Shelly Sakiyama-Elbert. "Induction of Ventral Spinal V0 Interneurons from Mouse Embryonic Stem Cells." *bioRxiv 2020.08.06.237115*

TEACHING & MENTORING EXPERIENCE:

Rice Interim Mentoring Initiative, 04/2020 – Present
Rice University
- Aid K-12 teachers in engaging students on a variety of subjects during COVID-19 lockdown
- Create subject-specific videos and teach students live online

MCAT Biology Instructor & Tutor, 02/2016 – Present
The Princeton Review
- Explain concepts & strategies for excelling in the biology section of the MCAT exam
- Oversaw significant score improvements for multiple students

Private Tutor & Career Mentor for Underserved Lebanese, 09/2010 – Present
- Tutor individuals from financially difficult backgrounds & small villages on STEM and English subjects in order to excel on high-school and standardized admission tests
- Mentor underserved individuals on how to do well on their path to gain better schooling or job opportunities in Lebanon or abroad
- Conduct mock interviews and essay/resume writing sessions to improve their confidence and communication skills
- Helped over 20 people get accepted to study and/or work in Europe & the Middle East so far

Graduate Teaching Assistant, 01/2020 – 05/2020
Dept. of Bioengineering, Rice University
- Prepared and assisted sophomores in a weekly 3-hour systems physiology lab course

PROJECTS:

Market Research & Diligence Projects, 06/2020 – Present
ENRICH & Insights, Enventure
- Performed market research & diligence for Texas-based biotech start-ups as ENRICH fellow
- Investigated trends & published insights on the COVID-19 vaccine landscape with Enventure

Senior Undergraduate Project Sponsored by U.S. Dept. of Defense, 10/2018 – 05/2019
Dept. of Biomedical Engineering, The University of Texas at Austin
- Designed & built a self-intubating airway device that improves the success rate of intubation on wounded individuals in unfavorable environmental conditions
- Co-created an innovative design for a carbon dioxide sensing device along with an algorithm developed to guide an endotracheal tube from the mouth into the trachea
- Led team to achieve all major milestones set by sponsor at the beginning of the project

SKILLS:

Experience with Microsoft Office, MATLAB, Rhinoceros & Illustrator
Fluent in Arabic; Basic French, Italian & Spanish