OMB No. 0925-0001 and 0925-0002 (Rev. 03/2020 Approved Through 02/28/2023)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Mona Elsayed

eRA COMMONS USER NAME (credential, e.g., agency login): elsayed\_m

POSITION TITLE: Doctoral Student

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

| INSTITUTION AND LOCATION | DEGREE(if applicable) | Start DateMM/YYYY | Completion DateMM/YYYY | FIELD OF STUDY |
| --- | --- | --- | --- | --- |
| The College of New Jersey (TCNJ) | B.S. | 08/2014 | 05/2018 | Molecular Biology & Psychology (minor) |
| Rutgers University – New Brunswick | M.A. | 08/2018 | 10/2021 | Cognitive Science/ Psychology |
| Rutgers University – New Brunswick | Ph.D. | 08/2018 | - | Cognitive Psychology |

**A. Personal Statement**

As a doctoral student in Psychology with training in the biological sciences, my interests are in understanding the physiological basis of atypical behavior and neurodevelopment. My research has revolved around using various biosensors to track cardiac, motor, and brain activity as a proxy for characterizing and understanding different layers of the human nervous system. Recently I have focused on analysis of cardiac signals to identify biometrics associated with states of pain and related stress/anxiety in neurotypical and autistic individuals. During the COVID pandemic, I have worked with my colleagues to develop a protocol for remote data-collection that allows for greater accessibility and scalability of our methods outside of laboratory settings. We have successfully deployed this protocol via wearable sensors and video-based motion capture to assess dyadic social interactions in autistic children. Outside of research, my academic career has also included an emphasis on mentoring and education. Through teaching several laboratory and recitation courses, I have worked on refining my skills in designing and delivering course content as well as developing an engaging and inclusive classroom environment. As a mentor outside of a classroom setting, I strive to help students from underprivileged communities as well as minorities achieve their career and academic potential.

**B. Positions and Honors**

**PROFESSIONAL EXPERIENCE**

**2016 - 2018 Math Science Tutor – The College of New Jersey, Ewing, NJ**

**2016 - 2017 Personal Care Assistant – Self-Directed Services Fiscal Management, Elizabeth, NJ**

**2016 - 2016 Research Intern – Princeton Neuroscience Institute, Princeton University, Princeton, NJ**

**2017 - 2017 Personal Care Assistant to the Disabled – PCG Public Partnerships, Hamilton, NJ**

**2018 - 2018 Humanities & Social Sciences Tutor – The College of New Jersey, Ewing NJ**

**2018 - 2019 Cognitive Psychology Teaching Assistant – Rutgers University, Piscataway, NJ**

**2019 - 2019 Sensation & Perception Laboratory Instructor – Rutgers University, Piscataway, NJ**

**2020 - 2020 Cognition Laboratory Instructor – Rutgers University, Piscataway, NJ**

**2020 - 2020 General Psychology Gateway Recitation Instructor – Rutgers University, Piscataway, NJ**

**2020 - 2021 Abnormal Psychology Laboratory Instructor – Rutgers University, Piscataway, NJ**

**2021 - 2022 Infant & Child Development Laboratory Instructor – Rutgers University, Piscataway, NJ**

**ACADEMIC AWARDS/HONORS AND SCHOLARSHIPS**

**2014 - 2018 Dean’s List – The College of New Jersey**

**2016 - 2018 PERSIST Scholarship (x2) – TCNJ *PERSIST 2.0* Scholars Program**

**2017 - 2018 Junior and Senior Incentive Award – TCNJ Educational Opportunity Fund Program**

**2018 - 2018 Biology Department Faculty Award – The College of New Jersey**

**2018 - 2018 Outstanding Academic Achievement – TCNJ Educational Opportunity Fund Program**

**2018 - 2018 Summa Cum Laude – The College of New Jersey (TCNJ)**

**2020 - 2020 Honorable Mention – NSF Graduate Research Fellowship Program**

**2020 - 2020 Micro-badge – Mentoring Undergraduates Training, Rutgers University**

**2021 – 2021 Erdős Data Science Bootcamp Certificate – The Erdős Institute**

**MENTORING/LEADERSHIP EXPERIENCE**

2015 - 2016 PERSIST Peer Mentor, PERSIST 2.0 Scholars Program

2015 - 2017 Peer Mentor – Educational Opportunity Fund Program

2016 - 2017 Biology Department Peer Mentor, Tri-Beta Biology Honor Society

2017 - 2018 Chapter Executive Board Student Representative, Phi Beta Kappa, TCNJ

2020 - 2021 Cognitive Area Diversity & Climate Committee Student Representative, Rutgers University

2019 - Graduate Student Mentor –RUMentoring to Improve Neuroscience Diversity Program

2020 - Program Adminstrator –RUMentoring to Improve Neuroscience Diversity Program

**PROFESSIONAL MEMBERSHIPS**

2014 - 2018 General Member – Tri-Beta Biological Honor Society

2016 - Member – Golden Key International Honor Society

2017 - Member – Phi Beta Kappa (ΦΒΚ) Honor Society

2020 - Associate Member – Society for Neuroscience, Neuroscience Scholars Program

2020 - Associate Member – American Psycho-Somatic Society (APS)

2020 - Member – Psychonomic Society

2021 - Member – New York Academy of Sciences (NYAS)

2022 - Member – Society for Neuroscience (SfN)

 **C. Contributions to Science**

**1. Undergraduate Research:**

At TCNJ I performed about 2 years of independent research with Dr. Dennis Shevlin. I explored the parasitic life cycle and genetic diversity present within and among different populations of *Sporisorium ellisii*. Such investigations have been hindered by the lack of genetic and molecular studies on this newly discovered species. However, Inter Simple Sequence Repeat (ISSR) fingerprinting served as a unique tool to assess the genetic diversity present in this species as it does not rely on previous knowledge from genomic libraries. Isolating samples from infected plants in the field and using a variety of molecular techniques such as DNA extraction, PCR, gel electrophoresis, spectrophotometry, and confocal microscopy, we discovered unique characteristics of the parasite’s genetic variability and strategies of infection.

Mohanty S, **Elsayed M,** Lad M, Shevlin D. The Parasitic Life Cycle of the Obligate Endoparasite *Sporisorium ellisii* on its Host Plant *Andropogon virginicus.* May 2017. The College of New Jersey Celebration of Student Achievement, Ewing, NJ

**Elsayed M,** Salem A, Shevlin D. Utilizing ISSR Fingerprinting to Characterize the Genetic Diversity Present in Geographically Distinct Populations of the Smut Fungus *Sporisorium ellisii.* December 2017. The College of New Jersey COSA, Ewing, NJ

**2. Internship Research (REU):**

At Princeton University’s Neuroscience Institute, I worked at the Witten Lab in collaboration with Dr. Courtney Cameron on a study which investigated the information encoded by a corticolimbic neural projection from the infralimbic cortex (IL) to the nucleus accumbens (NAc) during cocaine self-administration and extinction. Behavioral paradigms, cellular-resolution calcium imaging, and optogenetic tools revealed that this projection displays spatial and temporal selectivity during drug seeking and that activation of IL-NAc neurons decreases ongoing cocaine-seeking behavior. Such findings have serious implications in combatting drug addiction and in the production of relapse-prevention therapies.

Cameron CM, Murugan M, Choi JY, Engel EA, Witten IB. Increased Cocaine Motivation Is Associated with Degraded Spatial and Temporal Representations in IL-NAc Neurons. Neuron. 2019 Jul 3;103(1):80-91.e7. doi: 10.1016/j.neuron.2019.04.015. Epub 2019 May 14. PMID: 31101395; PMCID: PMC7262973.

**3. Graduate Research**:

At the Sensory-Motor Integration Lab (SMIL) under Dr. Elizabeth Torres, I began using motion-sensing technologies as well as ECG as a proxy for understanding embodied cognition and proprioception in neurotypicals (NT) and those with neurological disorders. My current work focuses on developing digital biomarkers of pain by assessing how it influences movement and cardiac activity, among other physiological responses in neurotypical and autistic individuals. The goal of this study is to uncover signatures in nervous system signals that can help detect internal pain and anxiety states. I have also worked on a project to allow for remote data collection from subjects via wearable sensors and video-based motion detection technology. This protocol offers an innovative and controlled method to collect and analyze biophysical (kinematic, electrocardiographic, voice, video) data outside a laboratory environment. These techniques have been applied to various research projects ranging from clinical trials to digitizing social interactions.

**Elsayed M,** Torres EB. Characterizing psychophysiological responses to pressure pain. American Psychosomatic Society 2020 Virtual Meeting. December 2020.

**Elsayed M**. *Characterization of Psychophysiological Responses to Pressure Pain*. Diss. Rutgers The State University of New Jersey, School of Graduate Studies, 2021

**Elsayed M,** Torres EB. Characterizing cardiac responses to pressure pain during motor- cognitive tasks. New York Academy of Sciences, Manhattan, NY. May 2022

**Elsayed M,** Torres EB. Cardiac Responses to Pain as Biomarkers for Pain-Induced Stress in Autism. Society for Neuroscience, San Diego, CA. November 2022

**Elsayed M,** Torres EB. Cardiac Responses to Pain as Biomarkers for Pain-Induced Stress in Autism. Rutgers Brain Health Institute Annual Symposium, Piscataway, NJ. December 2022

**Elsayed M**, Ryu J, Torres EB. Setting our Lab in a Box: Paving the Road Towards Widely Accessible Biophysical Data Collection.Manuscript in preparation.

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