

Nicole Moussa

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(971) 219-7706

EDUCATION

BS Psychology (*magna cum laude*, GPA: 3.77), Oregon State University, 2015-2019

RESEARCH EXPERIENCE

IRTA Postbaccalaureate Fellow (PI: Dr. Thorsten Kahnt), National Institute on Drug Abuse, 2022-present

- Independently ran functional MRI (fMRI), transcranial magnetic stimulation (TMS), transcranial ultrasound (TUS) and behavioral study sessions with healthy control participants and those who had a history of opioid-use disorder.
- Led independent research project on the role of the midbrain during identity prediction errors, wrote custom data analysis scripts, and currently interpreting results.
- Established use of BreathMetrics toolbox for respiratory biomarker analysis.
- Preprocessed and analyzed fMRI, biomarker, behavioral, and drug use questionnaire data using MATLAB and SPM12 to investigate the neural mechanisms associated with learning and decision-making in human participants.
- Administered DSM-V alcohol use and Addiction Severity Index (ASI) to research participants during 30 and 60 day follow up contact.
- Managed and trained lab members for participant contact, scheduling, follow up contact, and payment across five research studies.
- Liaised with medical team to approve human participants using standardized inclusion and exclusion criteria.
- Collaborated with the study team to develop new research protocols that included the development of IRB proposals.

Volunteer Research Assistant (PI: Dr. Bonnie Nagel), Developmental Brain Imaging Lab, Oregon Health and Science University, 2020-2022

- Evaluated brain development and neuropsychiatric conditions in healthy and at-risk youth using cognitive tasks and neuroimaging.
- Independently created and organized digital copies of neurocognitive tasks for virtual participants during the COVID-19 pandemic.
- Systemized neurological assessment documents for the ABCD study into automated files for lab-wide use to be used for fMRI and behavioral analysis.

Volunteer Research Assistant (PI: Dr. Joel Nigg), ADHD Lab, Oregon Health and Science University, 2019-2020

- Evaluated causes of ADHD using biomarker, behavioral, and interview data to inform the development of novel treatments.
- Independently administered neurocognitive testing and electrodermal system activity data acquisition in adolescent participants with ADHD.

- Completed in-vivo coding for participant interviews, and statistical analysis using R to find correlations between affect, behavior, and drug-use in adolescences with ADHD.
- Proficiency in REDCap and SPSS for behavioral acquisition and analysis.

Undergraduate Research Assistant (PI: Dr. John Edwards), Behavioral Science Lab, Oregon State University, 2017-2019

- Led testing administration for all participants collecting biological and behavioral data.
- Used R to find correlations between salivary cortisol, heart rate, self-report and stress reactivity.
- Streamlined the organization and translation of data sets to be used for statistical analysis.
- Main point of contact for participants to schedule visits.

CLINICAL EXPERIENCE

Clinical Mentoring Program, National Institute on Drug Abuse, Baltimore, MD, 2022 – present

- Shadowed MDs, PAs, and nurses when conducting medical evaluations for research participants.
- Assisted in performing in-house labs, immune system response, and basic laboratory results.

Registered Behavior Technician, Centria Healthcare, Portland, OR, 2020-2022

- Initiated activities of daily living that followed behavioral skill acquisition and reduction protocols for adolescents with neurodevelopmental delays using applied behavioral analysis.
- Observed and documented clinical behavior and responses through an electronic health record.
- Collaborated with parents, supervisors, and teachers regarding clients' behavioral progress to inform updated behavioral interventions.

PRESENTATIONS

1. **Moussa N.**, Khan T., Vaidya A.R., and Kahnt T. Formation of an abstract task representation for inference of rewards: a behavioral pilot study. *12th Annual NIDA Poster Day*, May 16, 2024, Baltimore, MD, USA.
2. Khan T., **Moussa N.**, Vaidya A.R., and Kahnt T. Characterizing knowledge of task structure using explicit judgement versus task performance. *12th Annual NIDA Poster Day*, May 16, 2024, Baltimore, MD, USA.
3. Vaidya A.R., **Moussa N.**, Khan T., Badre D. and Kahnt T. Neural networks supporting the formation and utilization of an abstract representation of task structure during generalization. *12th Annual NIDA Poster Day*, May 16, 2024, Baltimore, MD, USA.
4. **Moussa N.**, Khan T., Vaidya A.R., and Kahnt T. Formation of an abstract task representation for inference of rewards: a behavioral pilot study. *12th Annual NIH Poster Day*, May 1, 2024, Baltimore, MD, USA.
5. Khan T., **Moussa N.**, Vaidya A.R., and Kahnt T. Characterizing knowledge of task structure using explicit judgement versus task performance. *12th Annual NIH Poster Day*, May 1, 2024, Baltimore, MD, USA.
6. Vaidya A.R., **Moussa N.**, Khan T., Badre D. and Kahnt T. Neural networks supporting the

formation and utilization of an abstract representation of task structure during generalization. *The 5th Quadrennial Meeting on Orbitofrontal Cortex Function*, April 22 2024, Paris, France.

7. **Moussa N.** Respiration that indicates behavior and decision-making. *NIDA Postbac Luncheon, April 10 2024, Baltimore, MD, USA.*
8. **Moussa N.**, Husami S., Wang F., Tegelbeckers J., Lee A., Vertz J., Agage D., Taylor R., Liu Q., Vaidya A.R., Schoenbaum S., Epstein D., and Kahnt T. Assessing inference-based behavior in opioid use disorder with a sensory preconditioning task. *11th Annual NIDA Poster Day, May 11, 2023, Baltimore, MD, USA.*
9. Vaidya A.R., **Moussa N.**, and Kahnt T. Formation of an abstract task representation for inference of rewards: a behavioral pilot study. *11th Annual NIDA Poster Day, May 11, 2023, Baltimore, MD, USA.*
10. **Moussa N.**, Husami S., Wang F., Tegelbeckers J., Lee A., Vertz J., Agage D., Taylor R., Liu Q., Vaidya A.R., Schoenbaum S., Epstein D., and Kahnt T. Using respiration to predict inference-based decision making in opioid use disorder. *Johns Hopkins, Behavioral Pharmacology Research Unit Poster Day, July 16, 2023, Baltimore, MD, USA.*
11. Vaidya, A.R., **Moussa N.**, Badre D., and Kahnt T. Formation of an abstract task representation for generalization. *Society for Neuroscience, November 14, 2023, Washington DC, USA.*

KEY SKILLS

Programming: REDcap, Psychopy

Data Acquisition & Analysis: SPSS, SPM12, Excel, MATLAB, Python, R, Jasper, BreathMetrics, Eprime

Graphics: Adobe Illustrator, Adobe Photoshop, MRICroGL, MRICron

Neurological Assessments: WIAT-II, WISC-IV, WAIS-IV, D-KEFS, Digit Span

HONORS AND AWARDS

- Postbaccalaureate Intramural Research Training Award, *National Institutes of Health/National Institute on Drug Abuse*, 2022-2025
- Graduated with Distinction, *Oregon State University*, 2019
- Honors List, *Oregon State University*, 2017-2019
- Dean's List, *Oregon State University*, 2015-2019

CERTIFICATIONS

- TMS Device Operation and Safety, *National Institutes of Health*, 2023
- CITI Training for Human Subjects Research, 2022

PROFESSIONAL SOCIETIES MEMBERSHIPS

- Psi Chi Psychology National Honors Society, since 2017
- Society for Neuroscience, since 2023

VOLUNTEER SERVICES

- Baltimore Animal and Rescue Shelter, 2024-present
 - Provided enrichment for shelter animals, initiated adoption visits, and engaged in collaboration for fundraiser events.
- Roberta's House, *Grief Support Group Facilitator*, 2023-present
 - Facilitated weekly, in-person support groups for adolescence experience familial grief.
- Center Against Rape and Domestic Violence, *Advocacy Volunteer*, 2017-2019
 - Maintained shelter organization, the scheduling of weekly support groups, and provided childcare.