

MAYA WHITFIELD

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EDUCATION

Nimbus College — B.S. in Neuroscience, *summa cum laude* (expected) Aug 2022 – May 2026
Cambridge, MA

- GPA: **3.92 / 4.00** | Dean's List, all seven semesters
- **Honors Thesis:** "*Synaptic Plasticity Signatures of Sleep-Dependent Memory Consolidation in the Hippocampal CA1 Region*" — Advisor: Prof. Elena Kastor
- Relevant coursework: Systems Neuroscience, Computational Neurobiology, Statistical Methods for the Behavioral Sciences, Molecular Basis of Learning & Memory

RESEARCH EXPERIENCE

Undergraduate Research Assistant — Kastor Neurophysiology Lab, Nimbus College Sep 2023 – Present

- Built an automated two-photon calcium-imaging analysis pipeline in Python, cutting processing time per session by 40%
- Designed and ran a sleep-deprivation behavioral paradigm across a cohort of 60 mice; managed IACUC-approved handling protocols
- Co-authored a manuscript on hippocampal ripple density now under review at the *Journal of Synaptic Neuroscience*

Summer Research Intern — Synapse Institute for Cognitive Science Jun 2025 – Aug 2025

- Collected and preprocessed EEG data from 45 participants for a memory-consolidation study under Dr. Marcus Delgado
- Implemented artifact-rejection and spectral-power scripts in MATLAB, adopted as the lab's standard preprocessing step
- Presented interim findings at the institute's summer research symposium

Research Volunteer — Vertex University Sleep & Cognition Lab Jan 2023 – May 2023

- Conducted a structured literature review on circadian regulation of synaptic plasticity
- Assisted in drafting an IRB protocol amendment for a human sleep-restriction study

PUBLICATIONS & POSTERS

- Whitfield, M., Kastor, E. "Hippocampal Ripple Density Predicts Overnight Memory Retention in a Rodent Model." *Journal of Synaptic Neuroscience*, under review, 2026.
- Whitfield, M., Okafor, D., Kastor, E. "An Automated Pipeline for High-Throughput Two-Photon Calcium Imaging Analysis." Poster, *Society for Nimbus Neuroscience Annual Meeting*, 2025.
- Whitfield, M. "Sleep Deprivation and Hippocampal Plasticity: A Pilot Study." Poster, *Nimbus College Undergraduate Research Symposium*, 2024.

AWARDS & HONORS

- Apex Foundation Undergraduate Research Fellowship — \$5,000 award for independent lab research (2025)
- Meridian Prize for Excellence in Neuroscience, Nimbus College (2025)
- Best Poster Award, Nimbus College Undergraduate Research Symposium (2024)
- Dean's List, Nimbus College — all seven semesters (2022–2026)

TECHNICAL SKILLS

- **Analysis:** Python (NumPy, SciPy, scikit-learn), MATLAB, R, ImageJ/Fiji
- **Methods:** two-photon calcium imaging, EEG acquisition & preprocessing, confocal microscopy, rodent behavioral testing
- **Other:** LaTeX, Git, REDCap, IACUC/IRB protocol documentation

REFEREES

Prof. Elena Kastor	Dr. Marcus Delgado	Prof. Alicia Ferreira
Kastor Neurophysiology Lab	Synapse Institute for	Dept. of Psychology
Nimbus College	Cognitive Science	Vertex University
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