

# S. Parker Singleton

sps253@cornell.edu | singlesp.github.io | sypres.io

## EXPERIENCE

### Senior Scientist

Penn Lifespan Informatics & Neuroimaging Center, University of Pennsylvania

Aug 2025 – Present  
Philadelphia, PA

- Lead researcher and developer for **SYPRES**: living evidence synthesis platform for clinical psychedelic research.
- Member of the neuroinformatics team: neuroimaging data curation, analysis, release; full-stack software engineering.

### Postdoctoral Researcher

Penn Lifespan Informatics & Neuroimaging Center, University of Pennsylvania

May 2024 – Jul 2025  
Philadelphia, PA

- Assessed clinical efficacy and risks of psychedelic-assisted therapies using fMRI and computational modeling.
- Developed novel frameworks for quantifying psychedelic-induced functional brain plasticity.

### Postdoctoral Researcher

Computational Connectomics Lab, Weill Cornell Medicine

Apr 2023 – Apr 2024  
New York, NY

- Applied network control theory and multimodal neuroimaging to study pharmacological effects on brain dynamics.
- Mentored undergraduate and graduate students on rotation and thesis projects.

### NSF Graduate Research Fellow

Department of Computational Biology, Cornell University

Jun 2020 – Apr 2023  
Ithaca, NY

- Identified neural correlates of MDMA-assisted therapy for PTSD via audio script-driven fMRI paradigms.
- Published first-author papers in *Nature Communications* and *Frontiers in Psychiatry*.

### High School Teacher

Palmetto Scholars Academy

Aug 2017 – Jun 2020  
North Charleston, SC

- Designed chemistry curricula for gifted students; taught dual-enrollment college chemistry and research methods.

## EDUCATION

### Ph.D. Computational Biology

Cornell University, 2023

### M.S. Chemistry

Cornell University, 2017

### B.S. Chemistry

University of South Carolina, 2015

## SELECTED PUBLICATIONS

1. Mallaroni, S. P. Singleton, et al. "Spatiotemporal mapping of brain organisation following 2C-B and psilocybin." *Mol. Psychiatry*, 2026.
2. S. P. Singleton, et al. "An initiative for living evidence synthesis in clinical psychedelic research." *Nat. Ment. Health*, 2025.
3. S. P. Singleton, Timmermann, et al. "Network control energy reductions under DMT relate to serotonin receptors, signal diversity, and subjective experience." *Commun. Biol.*, 2025.
4. S. P. Singleton, Luppi, et al. "Receptor-informed network control theory links LSD and psilocybin to a flattening of the brain's control energy landscape." *Nat. Commun.*, 2022.
5. S. P. Singleton, Wang, et al. "Altered brain activity and functional connectivity after MDMA-assisted therapy for PTSD." *Front. Psychiatry*, 2023.

*Full list: 13 original research articles & 2 commentaries across Nature Communications, Nature Biomedical Engineering, Nature Human Behaviour, Nature Mental Health, Molecular Psychiatry, Communications Biology, and others.*

## SKILLS & EXPERTISE

|                     |   |
|---------------------|---|
| <b>Neuroimaging</b> | fMRI, dMRI, PET preprocessing and analysis; network neuroscience; biomarker discovery |
| <b>Computation</b>  | Network control theory, machine learning, statistics, computational modeling          |
| <b>Programming</b>  | Python, R, MATLAB, Bash, Git, full-stack web development                              |
| <b>Domain</b>       | Psychedelic neuroscience, substance use disorders, PTSD, clinical trial methodology   |

## SELECTED HONORS

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|-----------|--|
| 2022      | Fulbright Research Grant Alternate                       |
| 2016–2022 | National Science Foundation Graduate Research Fellowship |
| 2015      | University of South Carolina Outstanding Senior Award    |
| 2014      | Magellan Scholarship for Undergraduate Research          |

## SELECTED PRESENTATIONS

- **Invited:** Winter Conference on Brain Research (2025); NIAAA / Nora Volkow Group (2023); OPEN Foundation (2023); Maastricht University (2022); Oxford Psychedelic Society (2021).
- **Posters:** Gordon Research Conference (2025); OHBM (2021–2024); Psychedelic Science (2023).