S. Parker Singleton

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Computational neuroscientist studying how psychedelics and pharmacological interventions reshape brain dynamics.
Builder of open-source tools for clinical evidence synthesis and neuroimaging data curation.

EXPERIENCE

Senior Scientist   Aug 2025 – Present
Penn Lifespan Informatics & Neuroimaging Center, University of Pennsylvania   Philadelphia, PA
- Built and launched SYPRES, a living evidence synthesis platform for clinical psychedelics research.
- Curated and released 2 neuroimaging datasets; developed full-stack tools adopted by the PennLINC neuroinformatics team.

Postdoctoral Researcher   May 2024 – Jul 2025
Penn Lifespan Informatics & Neuroimaging Center, University of Pennsylvania   Philadelphia, PA
- Led the first living systematic review and meta-analysis of psilocybin for depression, synthesizing 15 clinical trials; published in *Nature Mental Health*.

Postdoctoral Researcher   Apr 2023 – Apr 2024
Computational Connectomics Lab, Weill Cornell Medicine   New York, NY
- Published 2 papers applying network control theory to substance use.
- Mentored 4 undergraduate and 1 graduate students on neuroimaging rotation and thesis projects.

NSF Graduate Research Fellow   Jun 2020 – Apr 2023
Department of Computational Biology, Cornell University   Ithaca, NY
- First-authored a *Nature Communications* paper demonstrating that psychedelics flatten the brain's control energy landscape — cited 175+ times.
- Identified neural correlates of MDMA-assisted therapy for PTSD in a Phase 2 clinical trial; published in *Frontiers in Psychiatry*.

High School Teacher   Aug 2017 – Jun 2020
Palmetto Scholars Academy   North Charleston, SC
- Taught dual-enrollment college chemistry and a research methods course to intellectually gifted students; coached 4 VEX robotics teams to 5 state-level awards and the US CREATE Open.

EDUCATION

Ph.D. Computational Biology   Cornell University, 2023
M.S. Chemistry   Cornell University, 2017
B.S. Chemistry   University of South Carolina, 2015

Technical: Python, R, MATLAB, Bash, Git | fMRI, dMRI, ASL, PET | Meta-analysis, ML, dynamical systems modeling | Full-stack web dev

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.

15 total publications across Nature Communications, Molecular Psychiatry, Nature Biomedical Engineering, and others.
h-index: 7 | 518 citations

HONORS & PRESENTATIONS

Honors: NSF Graduate Research Fellowship (2016–2022); Fulbright Research Grant Alternate (2022); Hiram S. & Lawanda Allen Scholarship (2014); Magellan Scholarship for Undergraduate Research (2014).

Invited talks: Winter Conf. on Brain Research (2025); NIAAA (2023); OPEN Foundation (2023); Maastricht Univ. (2022).

Posters: ACNP (2026); Gordon Research Conf. (2025); OHBM (2021–2024); Psychedelic Science (2023).

INTERESTS

Urban farming, hiking, music, community building, parenting