

GREGORY S. FITZGERALD, PhD

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PROFILE

Behavioral neuroscientist and quantitative researcher with preclinical and analytical experience across academic and industry-adjacent research. First-author and contributing-author publications spanning Alzheimer's therapeutics, whole-brain imaging, and applied machine learning, with a methodological focus on systematic evidence synthesis, reproducible statistical pipelines, and translational research.

EDUCATION

Ph.D., Behavioral Neuroscience | State University of New York at Albany
2026

B.A., Neuroscience, *Magna Cum Laude* | Queens College, City University of New York (minor: Japanese)
2013

RESEARCH & PROFESSIONAL EXPERIENCE

Doctoral Research Scientist | State University of New York at Albany, Stellar Lab
2016 - 2026

- Ran an independent preclinical research program testing IGF-2 (a neurotrophic factor) and metabolic interventions in rodent Alzheimer's models; first-author publication in *CNS Neuroscience & Therapeutics* (2023).
- Built an automated evidence-synthesis pipeline in R and Python for a systematic cross-species meta-analysis; identified a 2.5x effect-size gap between rodent and human cognitive findings.
- Executed the full experimental pipeline: intranasal compound administration, cognitive phenotyping (fear, spatial, and working memory), hippocampal cell culture, ICC, ELISA, and Western blot.

Laboratory Technician & Manager | Cold Spring Harbor Laboratory, Osten Lab
2011 - 2016

- Contributing author to a *Cell* publication (2017): validated transgenic mouse lines with IHC and contributed to serial two-photon tomography for whole-brain, single-cell-resolution mapping of GABAergic neuron distribution.
- Studied the neurobiology of social behavior in *Cntnap2* knockout autism models via stereotaxic viral injections, confocal microscopy, and IHC.
- Promoted from technician to lab manager: ran the animal colony, genotyping pipeline, procurement, and budgets, and coordinated across postdoctoral research teams.

Adjunct Instructor, Statistics | SUNY Albany & Hudson Valley Community College
2019 - 2026

- Primary instructor for undergraduate statistics across six years with excellent student evaluations; designed curriculum, assessments, and grading; mentored 16 undergraduate researchers.

Undergraduate Research Assistant | Bodnar Lab, Queens College, City University of New York
2009 - 2011

- Co-authored two peer-reviewed publications on reward-circuitry neuropharmacology; mapped brain activation via c-Fos immunohistochemistry in mesocorticolimbic regions.

Founder | EE Performance
2021

- Preclinical-stage biotech concept built around exogenous exerkinases as exercise mimetics for Alzheimer's disease; developed the scientific and commercial rationale, competed in the UAlbany Blackstone LaunchPad venture competition, and completed a patent-landscape analysis.

Research Collaborator | Metascience Observatory (with D. Elton, NIH/NIST)
2025 - present

- Systematic assessment of research replicability across scientific fields; reproducible one-command analysis pipelines in R.

PEER-REVIEWED PUBLICATIONS

1. Kim Y, Yang GR, Pradhan K, Venkataraju KU, Bota M, Garcia del Molino LC, **Fitzgerald G**, Ram K, He M, Levine JM, Mitra P, Huang JZ, Wang X-J, Osten P. Brain-wide Maps Reveal Stereotyped Cell-Type-Based Cortical Architecture and Subcortical Sexual Dimorphism. *Cell*. 2017;171(2):456-469.
2. **Fitzgerald GS**, Chuchta TG, McNay EC. Insulin-like growth factor-2 is a promising candidate for the treatment and prevention of Alzheimer's disease. *CNS Neuroscience & Therapeutics*. 2023.
3. Ralbovsky NM, **Fitzgerald GS**, McNay EC, Lednev IK. Raman spectroscopy and machine learning for Alzheimer's disease screening. *Spectrochimica Acta Part A*. 2021.
4. Kraft TT, Yakubov Y, Huang D, **Fitzgerald G**, Natanova E, Sclafani A, Bodnar RJ. Dopamine D1 and opioid receptor antagonists differentially reduce the acquisition and expression of fructose-conditioned flavor preferences in BALB/c and SWR mice. *Physiology & Behavior*. 2015;151:213-220.
5. Kraft TT, Yakubov Y, Huang D, **Fitzgerald G**, Acosta V, Natanova E, Touzani K, Sclafani A, Bodnar RJ. Dopamine D1 and opioid receptor antagonism effects on the acquisition and expression of fat-conditioned flavor preferences in BALB/c and SWR inbred mice. *Pharmacology Biochemistry and Behavior*. 2013;110:127-136.

PREPRINTS & WORKS IN PROGRESS

- Fitzgerald GS. A Cross-Species Meta-Analysis of Environmental Enrichment Effects on Cognition. Preprint, 2026.

PUBLIC & POPULAR WRITING

- Fitzgerald G, Elton D. "WTH is Cerebrolysin, actually?" *More is Different* (Substack), August 5, 2024.

SELECTED CONFERENCE PRESENTATIONS

- Fitzgerald GS, Sullivan EG, Ascioti M, McNay EC. Does phosphorylation of the insulin-like growth factor receptor (IGF2R) correlate with IGF2 binding activity in rat brain tissue? CURCE 19th Annual Student Symposium, University at Albany, 2022.
- Fitzgerald GS, Fumo EA, Hatase K, Sullivan E, Siskind A, Young H, Matthews A, McNay EC. Medial frontal cortex lidocaine administration and set-shift performance. NEURON Conference, 2020.
- Fitzgerald GS, Mallon LP. Molecular effectors of insulin's role in hippocampal memory processing across stages of memory. Society for Neuroscience Annual Meeting, 2018 (Program 084.02).
- Fitzgerald G, Kim Y, Osten P. Cntnap2 knockout mice exhibit reduced sociability in the three-chamber test. NEURON / Hunter Psychology Conference; URME Research Symposium; Sigma Xi Research Symposium, 2012.
- Kim Y, Venkataraju KU, Pradhan K, Fitzgerald G, He M, Levine J, Huang Z, Osten P. Quantitative brain-wide mapping of GABAergic neuronal subtypes in mice. Society for Neuroscience Annual Meeting, 2015 (571.02).
- Kim Y, Pradhan K, Fitzgerald G, Venkataraju KU, Osten P. Serial two-photon tomography-based whole-brain activity mapping in the Cntnap2 KO mouse model of autism. Society for Neuroscience Annual Meeting, 2013 (719.04).
- Kraft TT, Yakubov Y, Huang D, Fitzgerald G, Acosta V, Natanova E, Touzani K, Sclafani A, Bodnar RJ. Differential dopamine D1 and opioid receptor modulation of fat-conditioned flavor preferences in BALB/c and SWR inbred mice. Society for Neuroscience Annual Meeting, 2012.
- Dela Cruz J, Coke T, Sampson C, Fitzgerald G, Kest K, Icaza-Cukali D, Rotella FM, Ranaldi R, Touzani K, Sclafani A, Bodnar RJ. c-Fos induction in the rat amygdala following oral intake and intragastric infusion of sugar. Society for Neuroscience Annual Meeting, 2011; IBRO World Congress (Florence, Italy), 2011; Einstein in the City, 2011.
- Kraft TT, Fitzgerald G, Yakubov Y, Avizova O, Huang D, Faulding BD, Stern R, Touzani K, Sclafani A, Bodnar RJ. Flavor preferences conditioned by fat in BALB/c and SWR inbred mice. Society for Neuroscience Annual Meeting, 2011.
- Yakubov Y, Fitzgerald G, Acosta V, Borukhova N, Borukhov L, Elkomos-Botros M, Luu L, Kraft TT, Bodnar RJ. Dopamine and opioids modulate fructose-conditioned flavor preferences in BALB/c and SWR inbred mice. NEURON Conference, 2011; Society for Neuroscience Annual Meeting, 2010.

HONORS & AWARDS

- Magna Cum Laude, Queens College, CUNY (2013)
- Undergraduate Research Program (URP) Fund Scholar, Cold Spring Harbor Laboratory (2011)
- Undergraduate Research & Mentoring Education (URME) Scholar, Queens College, CUNY (2010)
- Salutatorian, Francis Lewis High School (2009)

TECHNICAL SKILLS

Computational & Quantitative: R, Python, SQL, SPSS, GraphPad Prism | Meta-Analysis & Systematic Review | Mixed-Effects & Bayesian Modeling | Applied Machine Learning | Reproducible Pipelines & Data Visualization

Laboratory: Stereotaxic Neurosurgery & Viral Vector Delivery | Microdialysis | Rodent Behavioral Testing | IHC/ICC | Confocal & Two-Photon Microscopy | Western Blot | ELISA | Primary Cell Culture | Colony Management & IACUC