

JENNA RADOVICH

Tallahassee, FL | (941)-321-5834 | jmr18c@fsu.edu | jennaradovich@gmail.com

SUMMARY

- **Ph.D. candidate in Biomedical Engineering** with hands-on experience in ultra-high field preclinical MRI, image processing pipeline creation, and a passion for neurological research.
- **Research:** Advancing the understanding of Alzheimer's Disease pathology and progression through diffusion imaging, functional imaging, X-nuclei, and PGSE which evaluate structural connectivity, functional connectivity, sodium homeostasis, and glymphatic brain clearance respectively.
- Known to be collaborative, detail-oriented, an adept problem-solver, with learning agility.

SKILLS

- **Tools & Computer Skills:** MATLAB, Linux/Ubuntu (C), Python, JMP Pro, ParaVision 360, TopSpin, AFNI, Amira, ITK-SNAP, DSI Studio, FSL, Gephi, MRtrix3, COMSOL Multiphysics, CAD, Excel, Electronic Notebook
- **Generative AI Tools:** Claude AI, ChatGPT, Microsoft Copilot
- **Technical Skills:** MRI acquisition, resting state-fMRI, DWI, DTI, X-Nuclei MRI, MRI image processing and analysis, Processing pipeline creation, MR spectroscopy, MR sequence optimization, RF coil fabrication and testing (linear birdcage volume and quadrature surface coils), Soldering and electronic assembly, Data analytics, Data management, Graph theory, Transgenic models, Histotechnology (cryostat tissue sectioning, immunohistochemistry, slide preparation), Fluorescence microscopy, Machinist Level I, 3D-printing, Printed Circuit Boards, Cell culture, Basic biology/chemical lab skills (pipetting, solution preparation, microscopy, sterile technique, transformation, gel electrophoresis, etc.), qPCR
- **Animal Experimental Techniques:** *in vivo* MRI rodent imaging, Rodent handling and restraint, Inhalation anesthetic induction and management, Substance administration (subcutaneous injection, intraperitoneal injection, intravenous injection via tail vein), Blood withdrawals (tail vein, submandibular, retro-orbital), Aseptic technique, Euthanasia, Cardiac perfusion, Tissue collection, Stereotaxic surgery
- **Soft Skills:** critical thinking, hard-working, strong communicator (written/oral), problem solver, collaborative, resilient, positive thinker

PROFESSIONAL EXPERIENCE

Eli Lilly and Company

PhD Intern, Indianapolis, IN

Jan. – May 2026

- Optimized a 3T MRI protocol to evaluate drug efficacy in a mouse model of disease.
- Developed an in-house, mouse-specific MRI processing pipeline to reduce the time required for analyzing MRI data by 60-75%.
- Acquired proficiency in logistics, application, and assessment of animal experimental drug dosing.
- Led comprehensive immunohistochemical tissue analysis, encompassing tissue extraction and fixation, cryoprotection procedures, cryostat sectioning, multiplex IHC staining, slide mounting, and imaging utilizing fluorescence microscopy.
- Implemented automated qPCR techniques to analyze bulk tissue samples and assess gene expression levels to evaluate the effects of the treatment.
- Maintained a detailed, up-to-date electronic notebook (Benchling) of all experimental reasonings, methods, results, and conclusions.
- Collaborated closely with cross-functional departments and teams to achieve research objectives.

National High Magnetic Field Laboratory & FSU

Graduate Research Assistant, Tallahassee, FL

Aug 2022-Present

- Designed, executed, and analyzed ultra-high field MRI experiments (21.1T) to investigate *in vivo* preclinical pathology within Alzheimer's Disease transgenic rodent models to identify interventional

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time points. Alzheimer's Disease is a neurodegenerative disease that impacts over 400 million people worldwide, with costs of care in 2023 totaling \$345 billion in the US alone.

- Developed semi-automated, scalable processing pipelines with built in quality control steps for *in vivo* ^{23}Na CSI, DTI, and rs-fMRI images incorporating image reconstruction, spatial alignment, segmentation, and value extraction using programs such as python, MATLAB, ITK-SNAP, and AFNI.
- Acquired and analyzed MRI data to assess the impact of sleep-enhancing pharmacological intervention on brain clearance and pathology in Alzheimer's Disease transgenic animal models.
- Established an MRI sequence and processing pipeline for *ex vivo* MRI of rodent brains to evaluate effects of pre-natal fentanyl use for a collaborative project with the College of Medicine at FSU.
- Optimized MRI Pulse Gradient Spin Echo (PGSE) acquisition sequences at ultra-high field strength, allowing for precise phase contrast measurements to assess glymphatic flow and ensuring high-quality data for analysis for a collaborative project with the Department Psychology at FSU.
- Engineered and prototyped a custom quadrature surface RF coil with integrated animal cradle system, enhancing SNR and expanding the laboratory's imaging infrastructure to enable high-resolution *in vivo* mouse MRI studies at 21.1T.
- Constructed a linear birdcage ^1H coil at 500MHz to expand the capabilities of the NHMFL for future collaborators.
- Assisted teaching a hands-on RF coil construction workshop at the NHMFL, guiding the construction of linear birdcage coils within a range 7T to 14.1T, led by the lab's RF engineer.
- Served on the subcommittee for NHMFL *in vivo* research, managing animal orders, scheduling, logistics of research projects, and providing animal expertise.
- Improved NHMFL animal research facility, assisting in rewriting protocols and procedures, to bring in new collaborations and funding.
- Enforced Institutional Animal Care and Use Committee (IACUC) protocols and ensured animal welfare compliance while serving as a certified Laboratory Animal Resources Partner officer at FSU, training lab members in regulatory standards.
- Assisted in writing and editing multiple ACUC protocol submissions through the Research Administration Management Portal system.
- Trained new post-doctoral users, graduate students, undergraduates, high school students in animal handling, MRI acquisition, image post-processing, and system maintenance, enhancing lab productivity and knowledge transfer.
- Collaborated with scientists at the NHMFL, FAMU-FSU College of Engineering, College of Psychology, and College of Medicine.
- Acted as a committee member for MRI protocol approval at the NHMFL.

Undergraduate Research Assistant

Jan 2021 – May 2022

- Acquired and evaluated longitudinal fMRI data to assess functional connectivity changes in transgenic rats to determine pathological evolution and find time specific indicators of Alzheimer's Disease.
- Analyzed DTI data for an Ischemic Stroke recovery rodent model with systemic human Mesenchymal Stem Cell treatment to evaluate its efficacy.

FAMU-FSU College of Engineering, Tallahassee, FL

Laboratory Teaching Assistant | Quantitative Anatomy and Systems Physiology

Fall 2023

- Facilitated the execution of laboratory experiments in areas such as fetal pig heart dissection, brain dissection, EMG, ECG, EEG and guided students in using equipment and software (BioPac).
- Graded and provided feedback to students on their laboratory reports and homework to help them improve their critical thinking and writing skills for future assignments.
- Integrated safety thinking into laboratory practices and emphasized the importance of continuous learning in engineering safety and laboratory procedures.

Graduate Teaching Assistant

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- Biomechanics (BME4211) Spring 2024
- Cell and Tissue Engineering (BME4332) Fall 2025

EDUCATION

Florida State University, Tallahassee, FL Expected Graduation May 2027

- *PhD in Biomedical Engineering*
- *MS with Thesis in Biomedical Engineering (earned April 2025; in-flight)*
- *Relevant Coursework:* Advanced Chemical Engineering Mathematics (ordinary and partial differential equations, linear algebra, dimensional analysis and scaling, vectors and tensor analysis, Fourier series and integral (Fourier and Laplace) transforms, boundary value problems), Advanced Transport Phenomena, Spectroscopic Techniques, Cellular and Molecular Neuroscience, Vertebrate Neuroanatomy, Molecular biology, Responsible Conduct of Research, Statistical Applications for Engineers

Florida State University, Tallahassee, FL May 2022

- *BS in Biomedical Engineering; Specialization: Cell and Bioprocess Engineering*
- *Relevant Coursework:* Organic Chemistry, Calculus, Physics, Process Analysis and Design (Ordinary Differential Equations), Biotransport Phenomena, Biothermodynamics, Biocomputations, Biomechanics, Bioinstrumentation, Biomaterials, Cell and Tissue Engineering, Quantitative Anatomy and Systems Physiology, Kinetics/Reactor Design
- Dean's List, President's List, Florida Bright Futures Academic Scholarship

PUBLICATIONS & PRESENTATIONS

Ragsdale, S. M.; **Radovich, J.M.**; *et al.*, "Dual orexin receptor antagonists as promising therapeutics for Alzheimer's disease," *npj Biol Timing Sleep*, vol. 2, no. 1, p. 11, March 2025, doi: [10.1038/s44323-025-00025-5](https://doi.org/10.1038/s44323-025-00025-5).

Radovich, J.M.*; Hardin, K.; Ragsdale, S.; *et al.*, "Longitudinal Structural MRI of TgF344-AD Model of Alzheimer's Disease Demonstrates Early Changes in Hippocampal Formation," Society for Neuroscience, Washington, DC, USA, 18 Nov. 2026. [Poster].

Hardin, K.T.; Le, A.K.; Ragsdale, S.M.; **Radovich, J.M.**; *et al.*, "Longitudinal characterization of sodium MRI, DTI, and action-place spatial learning in the TgF344-AD rat reveals impaired action-place learning emerging at 5-months," Florida Consortium on the Neurobiology of Cognition, Tallahassee, FL, USA, 6 May 2026. [Poster].

Coiduras, I.I.; Salvador, E.M.; Hardin, K.; **Radovich, J.**; *et al.*, "Oral administration of dual orexin receptor antagonist (DORAs) in young 3xTg mice improves diminished delta and may promote efficient brain waste clearance to prevent the progression of Alzheimer's Disease," Society for Neuroscience, San Diego, CA, USA, 11 Nov. 2025. [Poster].

Hardin, K.T.; Le, A.K.; Ragsdale, S.M.; **Radovich, J.M.**; *et al.*, "Longitudinal characterization of sodium MRI, DTI, and action-place spatial learning in the TgF344-AD rat reveals impaired action-place learning emerging at 5-months," Annual Biomedical Research Conference for Minoritized Scientists, San Antonio, TX, USA, Nov. 2025. [Poster].

Radovich, J.M.*; Elumalai, M.; Grant, S.C., "Ultra-High Field Sodium MRI to Assess Longitudinal Sodium Dysfunction in a Preclinical Transgenic Alzheimer's Disease Model," International Society for Magnetic Resonance in Medicine, Honolulu, HI, USA, 14 May 2025. [Poster].

Radovich, J.M.*; Grant, S.C., "Longitudinal Study of Sodium in the Brain of a Transgenic Rat Model of Alzheimer's Disease at 21.1-T," International Symposium on Pathomechanisms of Amyloid Diseases, Tallahassee, FL, USA, 5 Dec. 2024. [Poster].

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Radsdale, S.M.; Hardin, K.T.; **Radovich, J.M.**; et al., “Longitudinal characterization of resting state fMRI, DTI, and action-place spatial learning in the TgF344-AD rat reveals impaired action-place learning emerging at 5-months.” Society for Neuroscience, Chicago, IL, USA, 7 Oct. 2024. [Poster].

Radovich, J.M.*; Grant, S.C., “Functional and Structural Connectivity in the TgF344-AD Transgenic Rat Model of Alzheimer’s Disease using DTI at 21.1T.” International Society for Magnetic Resonance in Medicine, Toronto, ON, Canada, 6 June 2023. [Poster].

Radovich, J.M.*; Grant, S.C., “High Field Diffusion Tensor MRI of an Alzheimer’s Transgenic Rat Model.” Southeastern Magnetic Resonance Conference, Tallahassee, FL, USA, 5 Nov. 2022. [Poster].

Ogg, J.; **Radovich, J.M.**; et al., “Longitudinal Characterization of resting state fMRI, DTI, and an action-place spatial learning in the TgF3-44-AD Rat Reveals Impaired Action-place Learning Emerging at 5-months.” Society for Neuroscience, San Diego, CA, USA, 13 Nov. 2022. [Poster].

PROFESSIONAL DEVELOPMENT & LEADERSHIP

STEM Theory Organization

Secretary, Tallahassee, FL

Aug 2023 – May 2024

- Designed and coordinated quantitative experiments for high school students, fostering interest in scientific research and critical thinking.

Alpha Gamma Delta

Vice President of Academics, Tallahassee, FL

Dec 2019 – Dec 2020

Research Mentorship Experiences

MagLab Research Mentor Incubator Program

Sept 2023 – March 2024

- Participated in a structured mentorship program designed to support professional growth. Through this experience, I refined both mentor and mentee competencies in expectation alignment, assessing understanding, fostering independence, promoting equity and inclusion, and ensuring effective communication.

Momentum Scholar Program Mentor to Nana Ababio

March 2025 – May 2025

- Trained mentee in MRI acquisition techniques and supported early career development in biomedical research.

Research Mentor to Connor Blan

Aug 2024 – April 2025

- Guided research efforts in image processing code development, which resulted in successful data processing for my MS thesis.

Research Mentor to Eva Augirre

Aug 2024 – April 2025

- Trained mentee in MRI acquisition techniques, expanded upon basic knowledge of coding, and guided image reconstruction processes.

Research Mentor to Zachary Baty

Aug 2022 – May 2023

- Trained mentee in MRI acquisition techniques and guided image processing code development, which resulted in a peer-reviewed poster presentation. He is now a PhD student working with MRI at UF.

MagLab’s Summer REU Program final presentation judge

Aug 2023 & Aug 2024

- Served as a judge for 3 students presenting Thesis-style presentations, evaluating student presentations and providing constructive feedback on research communication.