James D. Kent

Research Associate

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Profile

- Neuroinformatics researcher leading large-scale scientific knowledge extraction and meta-analysis platforms, currently executing delivery of the NeuroSynth 2.0 grant.
- Blend research strategy, software engineering, and stakeholder coordination to translate NLP, LLM, and neuroimaging innovations into reproducible data infrastructure.
- Proven communicator who drives collaborative teams, mentors emerging researchers, and represents open science initiatives through talks, workshops, and publications.

Core Leadership Strengths

- Program management across distributed teams, aligning grant milestones, engineering sprints, and community contributions.
- Scientific software engineering: Python, NiMARE, PyBIDS, Nilearn, Flask, SQL, Docker, CI/CD.
- Large-scale data and NLP/LLM pipelines for automated literature curation, researcher-in-the-loop tooling, and interactive web platforms.
- Open science advocacy: transparent roadmaps, documentation, training materials, and collaborative governance.

Professional Experience

NeuroSynth 2.0 Technical Lead
2020 – Present
University of Texas at Austin / Neuroinformagic Lab

- Drive end-to-end redesign of NeuroSynth's automated meta-analysis pipeline, integrating modern NLP and LLM-assisted literature extraction with scalable neuroinformatics services.
- Manage cross-functional engineering teams (frontend, backend, data science) to ship grant deliverables, ensuring documentation, testing, and reproducibility targets are met.
- Architect researcher-in-the-loop workflows that connect interactive web tooling (Neurosynth Compose—the primary entry point for researchers) with NiMARE APIs, enabling rapid meta-analytic iteration.
- Coordinate stakeholder communication across collaborating institutions, preparing progress reports, manuscripts, and high-impact conference presentations (OHBM 2023–2025).

Lead Developer and Maintainer, NiMARE Ecosystem
2020 – Present
Open Neuroimaging Tools Consortium

- Steward NiMARE's open-source roadmap, triaging issues, reviewing pull requests, and implementing releases that support large-scale neuroimaging meta-analysis workflows.
- Designed automated testing, documentation builds, and community contribution guides that lowered onboarding friction for new developers and external collaborators.
- Mentored graduate contributors Yifan Yu and Julio Peraza (2022–2025), pairing them with onboarding projects, code review feedback, and authorship opportunities within the toolkit.

- Delivered webinars, tutorials, and hackathon sessions to disseminate NiMARE updates, driving adoption across academic and industry users.

Graduate Student & Community Builder *2014 – 2022*
University of Iowa (PhD) & Multi-institution Collaborations

- Led reproducible neuroimaging analyses within longitudinal cognitive aging studies, emphasizing transparent pipelines and reusable codebases.
- Organized workshops, hackathons, and teaching programs (Software Carpentry-certified instructor, OHBM Educational Workshops, BrainHack@UI) to broaden community skills in open science.
- Collaborated on flagship reproducibility tools such as fMRIPrep and NiBetaSeries, contributing to publications in the Journal of Open Source Software and Nature Methods.

Selected Impact

- **NeuroSynth Compose Platform**: Co-led design of a web-based interface that lets researchers assemble, compare, and publish meta-analyses with provenance-rich exports; presented iterative releases at OHBM 2022–2025.
- **Automated Literature Pipeline**: Implemented scalable ingestion of 20k+ neuroimaging abstracts using Python, spaCy, and LLM-assisted entity resolution to populate grant reporting dashboards.
- **Open Science Leadership**: Founded/organized Hacky Hour and Neuroimaging Workgroup communities at University of Iowa, a ReproNim fellowship recipient (2019), and OHBM Open Science Room Chair (2025–2026).
- **Reproducible Analytics**: Co-authored fMRIPrep and NiBetaSeries releases adopted by thousands of researchers; maintain pipelines built on BIDS, Nipype, and containerized execution.

Mentoring & Team Development

- Supervise graduate researchers Yifan Yu and Julio Peraza (2022–2025), guiding NiMARE feature development, code review practices, and manuscript preparation.
- Mentor undergraduate and post-baccalaureate assistants on data curation, testing infrastructure, and collaborative Git/GitHub workflows.
- Create structured onboarding playbooks, pairing sessions, and contribution checklists that accelerate new contributor productivity.

Publications & Talks (Selected)

- **Kent J.**, Lee N., Laird A., et al. (2026). *Neurosynth Compose: A web-based platform for flexible and reproducible neuroimaging meta-analysis.* Imaging Neuroscience.
- Esteban O., Markiewicz C. J., Blair R. W., **Kent J.**, et al. (2019). *fMRIPrep: a robust preprocessing pipeline for functional MRI.* Nature Methods.
- **Kent J.**, Herholz P. (2019). *NiBetaSeries: task related correlations in fMRI.* Journal of Open Source Software.
- **Kent J.**, Lee N., Salo T., et al. (2025). *NeuroSynth Compose: New Frontiers in Neuroimaging Meta Analyses.* OHBM Educational Workshop (Oral).
- **Kent J.**, Lee N., Salo T., et al. (2024). *NeuroSynth Compose: A Web-Based Platform for Reproducible Meta-Analyses.* OHBM (Poster).

Education

PhD Neuroscience   *University of Iowa, 2014 – 2020*
Research focus: fMRI methods, reproducible workflows. Advisor: Michelle Voss.

BA Psychology (Neuroscience Concentration)   *Grinnell College, 2010 – 2014*

Awards & Recognition

- Neuroscience Program Gloria Lee Service Award, University of Iowa (2020)
- Reproducible Neuroimaging Fellowship (ReproNim, 2019)
- Post Comprehensive Exam Research Award, University of Iowa (2016)
- University of Iowa Training Grant T-32 (2015)
- Grinnell College Research Grants (2012–2013)

Technical Toolbox

- **Languages**: Python, Shell, SQL, LaTeX, R
- **Neuroimaging**: NiMARE, PyBIDS, Nilearn, Nipype, fMRIPrep, AFNI, FSL, FreeSurfer
- **Data Infrastructure**: Flask, PostgreSQL, Docker, GitHub Actions, data versioning (DVC, git-annex)
- **Analytics & NLP**: SciPy ecosystem, scikit-learn, spaCy, transformer-based language models

Community Engagement

- Organizer and instructor for OHBM Educational Workshops (2023, 2025) and Reproducible Neuroimaging Workshop (Marburg University, 2023).
- Founder and organizer of Hacky Hour, Neuroimaging Workgroup, and BrainHack@UI (2015–2020), promoting interdisciplinary problem solving.
- Speaker for Software Carpentry sessions, open neuroimaging practices, and meta-analysis tutorials.

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