

Bradie Lee, PhD

Artist, designer & builder: making complex systems visible

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PROFESSIONAL SUMMARY

Scientist and builder who makes complex systems visible. PhD in plant biology (UC Berkeley) with a background in large-scale data analysis (R, Python, Linux/HPC). Now designing interactive data-visualization tools and AI-built software, including Terrain, a live map of a 200k-line codebase. Brings research rigor, systems thinking, and fluency directing AI to ship real products.

PROJECTS

Artist, Designer & Builder | Exocortex (personal knowledge system) | 5/2026 – present

- Designed and directed, using Claude (AI) as the engineering team, a full-stack personal knowledge platform: 625 commits, ~200k lines of Python/TypeScript, 137 test files, 24 automated background jobs.
- Designed **Terrain**, an interactive data-visualization suite (force-directed codebase map, data-flow "creek" diagrams, growth timelines) for understanding a live, AI-built codebase in real time.
- Diagnosed system-level issues across Linux, networking and data pipelines, e.g. traced an inotify exhaustion to leaked D-Bus processes from a scheduled backup job and fixed the root cause.

TECHNICAL SKILLS

- **Design & Visualization:** interactive data visualization, UI design, force-directed graphs, information architecture
- **Building with AI:** directing AI coding agents (Claude Code), prompt engineering, Python, TypeScript/React, SQL (SQLite), Git
- **Data Analysis:** R, Python, statistical modeling, hypothesis testing, large-scale dataset processing, Linux/bash, HPC
- **Research & Communication:** experimental design, QA/QC protocols, technical writing, multi-institution project coordination
- **Wet lab:** molecular cloning, Gibson assembly, fungal transformation, 16S rRNA / Illumina sequencing

PROFESSIONAL EXPERIENCE

Research Associate (contract) | Vidala Labs | 1/2026 – 7/2026

- Engineered *Trichoderma* sp. to produce proteins for chemotherapy drug production for an early stage startup.
- Designed and implemented custom lab inventory software using Elixir and AI assisted coding.

PhD Researcher | Coleman-Derr Lab (USDA ARS) / Vogel Lab (DOE JGI) | 2020–2024

- Designed and executed microbiome data analyses for 200+ samples using R and Python, applying statistical modeling and hypothesis testing.
- Executed end-to-end 16S rRNA Illumina sequencing workflows, from experimental design through bioinformatic analysis.

- Coordinated multi-institutional research projects with UC Berkeley, USDA ARS, and DOE JGI, managing timelines, deliverables, and collaborative workflows.
- Contributed to development of fabricated ecosystems technology (EcoFab 2.0, eco-fab.org), overseeing milestones, deliverables, and team contributions.

Undergraduate Researcher | University of Texas at Austin | 2016–2019

- Field and laboratory research on plant–microbe systems.
- Developed a high-throughput DNA extraction protocol reducing costs to ~\$0.05 per reaction.

EDUCATION

Ph.D. Plant Biology, University of California, Berkeley, 2019 – 2024

B.S. Plant Biology with Departmental Honors, University of Texas at Austin, 2015 – 2019. Certificate in Environment & Sustainability