

NATHAN BATTY

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I build AI systems people can trust and use, and I translate them for the people who rely on them. I ship production software powered by large language models, ground every build in a serious view of AI safety, and bring years of teaching and trauma-informed counseling that trained me to meet non-technical people where they are. Beginning a fully funded Ph.D. at Marquette University in Fall 2026.

AI Engineering & Tools

Syndesmos — Founder and sole engineer
Production research platform, syndesmos.ai

Sep 2025 – Present

- Built and deployed a full-stack platform (Python/FastAPI, SvelteKit, PostgreSQL, Docker, GitHub Actions CI/CD) that uses coordinated LLM agents to map how the concepts in a large body of text connect, and to surface what a body of discourse is missing.
- Engineered the AI to be interpretable and reproducible: a fixed, authoritative vocabulary and deterministic math, so results trace to their exact sources and the same input always produces the same output.
- Confined the language model to the steps that need judgment and kept the counting and scoring deterministic, a discipline for deploying AI where being wrong carries real consequences.
- Applied it to a regulated drug-safety problem; now the basis of an NIH R21 grant application with UW-Madison faculty. Built with Claude Code.

AI Safety Research

LLM Sycophancy: A Two-Gate Study — Algoverse AI Research Program

May 2026 – Present

- Leading the computational build of a study on regressive sycophancy: whether a model abandons a correct answer under user pressure and then stores that error in persistent memory, and whether an attachment-theory “secure base” reverses it. Split evidence-based updating from approval-seeking, built the evaluation pipeline with cross-family validation and majority voting, and am now extending the SycEval benchmark across frontier and open-weight models toward a workshop paper and an ICLR contribution.

Compulsive Compliance in AI Safety Training — AIES 2026 submission (under review) *Jan 2026 – Present*

- Showed that a frontier model’s trained refusals dissolve under sustained relational conditions rather than reflecting internalized alignment. Built a coding pipeline over 9,930 rows of naturalistic conversation using a three-instance self-consistency ensemble against a human gold standard ($\kappa = 0.84\text{--}0.87$). Collaboration with Dr. David Williamson Shaffer.

Drift-Taxonomy Program (with Veylan Solmira, Astra Fellow)

May 2026 – Present

- Authored the human-side drift mechanisms for a cross-level misalignment framework, and designed a pre-registration-ready pilot on refusal behavior in frontier models with go/no-go criteria, dual-use mitigation, and a responsible-disclosure protocol to Anthropic User Safety.

People-Facing & Leadership Experience

Teaching Assistant, Video Games and Learning — University of Wisconsin–Madison

Jun 2024 – Present

- Lead discussion sections on learning theory and give individualized feedback on student design projects, translating technical material for a non-technical audience.

Therapeutic Counselor and Parental Coach — Educates, Mequon, WI

Feb 2024 – Feb 2025

- Designed individualized care plans for children with ADHD and autism, applying trauma-informed, strengths-based frameworks across children, parents, nonprofit leadership, and government oversight.

Teacher, Technology Coordinator, and Staff Coach — Lad Lake, Dousman, WI

Aug 2021 – Jan 2024

- Taught youth who experienced trauma in a residential setting, coordinating across clinical teams, case workers, courts, families, and school districts. Deployed and trained staff on new VR hardware from a Unity x Meta grant.
- Coached direct-care staff using a structured framework (Elena Aguilar's Art of Coaching), conducted qualitative interviews, and presented an evidence-based proposal to administration. Thrived in a fast, high-stakes, under-resourced environment.

Education

Ph.D., Education Policy and Leadership — Marquette University
Admitted with a fully funded research assistantship.

Beginning Fall 2026

M.S., Curriculum & Instruction — University of Wisconsin–Madison
Concentration in Design, Informal, and Creative Education. GPA 4.0. Coursework in Quantitative Ethnography and Computational Methods.

Conferred May 2026

B.S., Secondary Education and History (Honors) — Marquette University
Graduated *cum laude*.

Conferred Jan 2021

Selected Research & Projects

Master's Thesis: Large-Scale Discourse Analysis — University of Wisconsin–Madison

2023 – 2026

- Analyzed 201,416 online comments across 726 videos with computational content analysis (84% precision against a human gold standard), tracing how an online learning community adopted a new framework across five distinct periods.

Semantic Convergence Analysis

Jan 2026

- Measured similarity across 91 academic papers using SPECTER embeddings; found that AI safety, clinical trauma, and educational psychology literatures cluster significantly tighter than unrelated fields ($p < 0.0001$, Cohen's $d = 0.78$).

Technical Skills

Languages & frameworks: Python (pandas, NumPy, scikit-learn, FastAPI), JavaScript/Node, SvelteKit, SQL/PostgreSQL, R, Bash, Git

AI & LLM tooling: Claude API and Claude Code, multi-agent workflows, LLM evaluation pipelines, prompt and system-prompt design, ReAct agents, OpenRouter, embeddings (SPECTER)

Deployment: Docker, GitHub Actions CI/CD, Caddy, Linux servers

Methods: Epistemic and Ordered Network Analysis, LLM-powered coding with self-consistency validation, inter-rater reliability, large-scale discourse analysis

Publications

Batty, N. S. (under review). *Compulsive compliance in AI safety training: how relational conditions dissolve trained behavioral restrictions in a frontier model*. Submitted to AIES 2026.

Batty, N. S. (2026). *Meta-discourse in creator-community partnerships: distributed cognition and event-driven learning in online gaming communities*. M.S. thesis, University of Wisconsin–Madison.

Grants, Certifications & Licenses

Grants: Two Unity x Meta education grants (Create with VR; Lighthouse Institution Partner), \$6,000 total.

Trauma-informed & coaching practice: Crisis Prevention Institute, Risking Connection, Collaborative Problem Solving, Art of Coaching (Elena Aguilar).

Wisconsin teaching licenses: History, Political Science, Broad Field Social Studies.