Daniel Pace

paced@sou.edu • **478-287-5482** • **Oregon, USA**
GitHub: DanPace725 • LinkedIn: danielapace

Education

B.S. Psychology (Expected Winter 2026)
Southern Oregon University, Ashland, OR

- GPA: 3.83

- Relevant Coursework: Research Methods, Cognitive Psychology, Neuroscience, Statistics, Learning & Cognition

- Includes Associate of Arts Oregon Transfer (GPA: 3.92) from Linn-Benton Community College

Research Interests

- Decision-making under uncertainty and structural fragility in information environments

- Cognitive scaffolding and interface design for neurodivergent users (ADHD/ASD-informed)

- Human-AI interaction, assistive technology ethics, and autonomy preservation

- Computational modeling of cognitive processes and emergent decision systems

- Engineering psychology and applied cognitive science in technology design

Research Experience

AI Learning Assistant, Research & Policy
Center for the Advancement of Teaching and Learning (CATL)
Southern Oregon University (2024–2025)

- Investigated how interface design choices in AI-assisted learning environments affect cognitive load distribution and decision-making quality in high-uncertainty academic contexts

- Developed and validated a sentiment analysis pipeline converting qualitative student feedback into structured JSON data, performing multi-class sentiment classification to identify patterns in student AI usage and concerns

- Created evaluation protocols for OpenAI's Safety Testing Program, systematically analyzing AI persuasion patterns, academic integrity vulnerabilities, and ethical safeguards in educational contexts

- Developed the Human-AI Creative Collaboration (HAIC) framework, a theoretical model describing cognitive processes and agency distribution in hybrid human-AI creative systems

- Co-authored institutional whitepapers on AI ethics and academic integrity, translating empirical findings into actionable policy recommendations

Computational Research Projects

Structural Coherence Framework for Decision Analysis (2023–Present)

Research Question: Can decision failures be predicted by analyzing the structural topology of information environments rather than choice content?

- Developed a computational framework for evaluating decision contexts across five structural dimensions: continuity (identity stability), differentiation (role clarity), contextual fit (situational appropriateness), accountability (causal transparency), and reflexivity (safe adjustability)

- Framework decomposed from first-principles analysis of recurring structural patterns across physical and cognitive domains

- Implemented as working applications demonstrating practical utility for personal decision-making, interface design, and cognitive tool development

- Testing shows consistent diagnostic scoring of decision stability across different user contexts independent of domain-specific content

Relational Coherence Navigator (CoNav) (2024–Present)

Application: Browser-based decision support tool implementing structural coherence framework

- Interactive web application providing real-time structural analysis of user-described decision environments

- LLM-based natural language processing for contextual assessment across five coherence dimensions

- Generates composite coherence scores (0-1 scale) with interpretive bands (fragmented, strained, mixed, stable, coherent)

- Provides non-directive recommendations based on structural patterns rather than normative judgments

- Designed specifically to support neurodivergent decision-making by scaffolding executive function without eroding autonomy

Emergence Engine (E²) – Agent-Based Cognitive Simulation (2023–Present)

Research Question: How do structural features of decision environments (resource distribution, information topology, feedback availability) predict agent decision stability independent of agent-specific parameters?

- Developed browser-based simulation in JavaScript modeling adaptive behavior across ~20 behavioral parameters in resource-constrained environments

- Implements Cross-Entropy Method (CEM) optimization with adaptive heuristics for evolving behavioral strategies

- Observed emergent differentiation of survival strategies (efficient "cultivator" vs. mobile "forager" archetypes) from identical starting conditions under different fitness objectives

- Demonstrated spontaneous phase transitions from independent to collective movement patterns under resource scarcity

- Investigating parallels between emergent system dynamics and human decision-making under cognitive load, particularly ADHD-related attention dynamics

ACE (Adaptive Cognitive Enhancement) Application (2024–Present)

Application: Gamified task-tracking system for executive function support

- Built using Next.js and Supabase, grounded in behavioral activation principles and ADHD/ASD-informed executive function research

- Incorporates variable reinforcement schedules, cognitive load reduction strategies, and modular task decomposition

- Adaptive reward system scales task value based on environmental difficulty using exponential moving average of completion times

- Interface design minimizes decision friction while preserving user agency and intrinsic motivation

- Implementing user-centered design methodology to evaluate usability and behavioral outcomes

Mindi – AI-Driven Chatbot & Organizational Tool (2024–Present)

Application: Conversational interface for knowledge management and episodic memory scaffolding

- Developed AI-driven interface reducing cognitive load in information organization and retrieval

- Designed to support episodic memory scaffolding and executive function challenges common in ADHD populations

- Implements natural language processing for context-aware information storage and retrieval

Publications & Scholarly Output

Manuscripts in Preparation

- Pace, D. (2025). *Structural Fragility in Decision Environments: A Computational Framework*.

- Pace, D. (2025). *PsychoCompugenics: A Framework for Synthetic AI Cognition*.

- Pace, D. (2024). *Distributed Failure Analysis: A Theoretical Exploration*.

- Pace, D. (2024). *A Resilient Framework for Substance Misuse Prevention*.

Technical Reports & Frameworks

- Pace, D. (2024). *Rethinking Academic Integrity in the Age of AI*. Southern Oregon University.

- Pace, D. (2024). *Proposal for OpenAI's Safety Testing Program.* Southern Oregon University.

- Pace, D. (2024). *Human-AI Creative Collaboration Framework (HAIC).*

Conference Presentations

- Pace, D. (2024). *Cognitive Theories, Attention Dynamics, and Memory Mechanisms.* Poster presented for History of Psychology, Southern Oregon University.

Research Methods Training

- *Effects of Digital Therapy Interventions on Student Stress* (2024): Designed research protocol investigating CBT-style digital interventions including literature review, experimental design, power analysis, and statistical analysis plan

- *Frustration and Mood Effects in ASD* (2025): Integrated empirical literature with cognitive theory examining emotional regulation, frustration tolerance, and sensory load in autistic individuals

Technical Skills

Human-Computer Interaction & Interface Design

- User Interface Design, User-Centered Design Methodology, Usability Evaluation

- Cognitive Load Assessment, Decision Support System Design

- Interactive Prototyping, Information Architecture

- Frameworks: React, Next.js, Tailwind CSS

Computational Modeling & Development

- Programming: JavaScript, Python, MATLAB, VBA

- Agent-Based Modeling, Cognitive Simulation, Reinforcement Learning (Cross-Entropy Method)

- Natural Language Processing, LLM Integration

- Version Control: Git/GitHub

Data Analysis & Statistics

- Data Visualization, Statistical Modeling, Regression Analysis

- Sentiment Analysis, Text Classification

- Tools: Python (pandas, numpy), MATLAB, Excel, Qualtrics

- Database Management: SQL, Supabase

Research Methodologies

- Experimental Design, Mixed Methods Synthesis

- Cognitive Modeling, Systems Analysis

- Human-AI Interaction Studies, Applied Ethics Analysis

- Computational Prototyping and Iterative Design

Professional Experience

Data Systems & Process Analyst

Palm Harbor / Cavco Manufacturing (2022–Present)

- Developed AI workflow applications for document processing and data reconciliation, reducing manual cognitive load in high-volume data environments

- Designed decision-support tools and automated workflows informed by cognitive psychology principles

- Reworked payroll systems using automation tools to streamline complex processes

Practicum Student

Jackson Street Youth Services (2024)

- Completed 150+ hours supporting client documentation systems and digital workflow improvements

Awards & Honors

- Peak Student of the Year, Southern Oregon University (2024–2025)

- Phi Kappa Phi Honors Society Member

- Provost's List, Southern Oregon University (Spring 2025, Fall 2024)

Professional Development

- Google Data Analytics Professional Certificate (Coursera)

References available upon request