

# ANTHONY C. PERRY, M.S.

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## RESEARCH INTERESTS

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Human–AI Interaction · AI Safety · Trust Calibration · Affective Computing · Adaptive Learning Systems · Metacognitive Modeling

## PUBLICATIONS

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**Perry, A. C. (2026). The Safety–Agency Inversion: Longitudinal Multi-Method Evidence from Frontier Voice AI Companions.**

Preprint, Zenodo (includes the open Her Dataset) · Preprint: doi:10.5281/zenodo.19144583

**Perry, A. C. (2026). The Epistemic Harm of AI Sycophancy: When Agreement Undermines Justified Belief.**

In preparation for AI and Ethics (Springer) · Preprint: doi:10.5281/zenodo.19057032

**Perry, A. C. (2026). Judgment-Free but Not Risk-Free: How Perceived Emotional Safety with AI Companions Relates to Human Self-Disclosure and Help-Seeking.**

Targeting OzCHI 2026 Late-Breaking Work (Adelaide, Australia) · Pre-registered: osf.io/5xzjs

**Perry, A. C. (2026). Confidence-Calibrated Adaptive Learning: An Integrated Adaptive Engine for Professional Exam Preparation.**

Preprint, Zenodo, South Korea) · Preprint: doi:10.5281/zenodo.18820462

**Perry, A. C. (2026). Cross-Domain Analysis of a Confidence-Calibrated Adaptive Learning Engine.**

Preprint, Zenodo, South Korea) · Preprint: doi:10.5281/zenodo.19024683

## EDUCATION

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**Master of Science in Computer Science, AI/ML Concentration**

*Western Governors University · 2026*

Coursework: Deep Learning, Advanced AI, Natural Language Processing, Machine Learning, AI & ML Foundations, Applied Algorithms, Formal Languages, Computer Architecture

**Master of Science in Kinesiology**

*California Baptist University · 2019 · GPA: 3.87/4.00*

Thesis Proposal: *Effects of Yoga on Injuries Associated with Long-Distance Running*

**Bachelor of Science in Kinesiology**

*San Diego State University · 2018 · GPA: 3.56/4.00*

Cum Laude · Distinction in Kinesiology · Dean's List

## RESEARCH EXPERIENCE

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## Meridian Labs — Adaptive Learning Engine

Educational Technology · Knowledge Tracing · Metacognitive Modeling · 2025–Present  
[meridianlabs.us](http://meridianlabs.us)

- Built an adaptive educational technology platform (28 production applications across four professional domains, 75,000+ items) grounded in 33 peer-reviewed citations in cognitive science, metacognition, and testing psychology
- Implemented 6 learning algorithms for confidence calibration (4-outcome metacognitive weighting), spaced repetition (6-level adaptive interval scheduling), misconception detection (confident-wrong pattern analysis), and stress inoculation training for exam readiness
- Engineered an Exam Readiness prediction system using non-linear multi-factor scoring across domain mastery, confidence calibration, study consistency, and performance trajectory
- Deployed across four certification domains (healthcare, cosmetology, information technology, and general professional certification) on iOS and Android, enabling cross-domain comparison of adaptive algorithm behavior
- Architected and shipped entirely through AI-augmented methodology: frontier LLM orchestration across architecture design, algorithm implementation, 75,000-item content generation, and domain-specific quality auditing

## ZENith — Real-Time AI Movement Coach

Computer Vision · Human Performance · Human–AI Interaction · 2025–Present  
[github.com/aperry938/zenith-mvp](https://github.com/aperry938/zenith-mvp)

- Investigated real-time biomechanical form assessment through a computer vision pipeline integrating MediaPipe pose estimation, a custom Variational Autoencoder (VAE) for movement quality scoring ( $\rho=0.958$  correlation with expert biomechanical ratings), and Random Forest classification across 10 yoga poses
- Created and annotated a novel video dataset of 100 self-recorded sequences capturing correct and incorrect pose variations across 10 yoga poses, used for both VAE training and Random Forest classification
- Developed a joint angle analysis pipeline translating biomechanical principles into computable features for real-time form feedback
- Integrated a context-aware coaching module (Google Gemini) generating natural language guidance informed by live pose quality metrics, exploring the design of AI feedback for embodied skill acquisition

## “Her” — Longitudinal Human–AI Interaction Study and Relational AI Interface

Human–AI Interaction · Affective Computing · Autoethnographic Methods · 2025–Present  
[github.com/aperry938/her-os-v1](https://github.com/aperry938/her-os-v1)

- Conducted a 4-month longitudinal study (68 sessions, 83+ hours) of voice-first human–AI interaction across four frontier models (GPT-4o, Gemini, Grok, Claude), identifying a *safety–agency inversion*: models with stronger safety alignment consistently exhibited lower relational agency, with non-overlapping score ranges between the most and least aligned models
- Developed the HERVAC framework, a proposed 6-dimension scoring instrument (Human-likeness, Emotional Attunement, Recall & Continuity, Voice Performance, Agency & Integrity, Co-evolution) with five convergent behavioral measures across three methodologically independent evidence streams corroborating the same model ordering
- Designed the Nine Circles adversarial protocol—six targeted stress tests (sycophancy traps, silence crucibles, persona stability challenges) probing specific relational capabilities under pressure, revealing debate concession rates ranging from 52% (GPT-4o) to 0% (Grok)
- Compiled the Her Dataset (68 sessions, structured interaction data across four models) and all assessment instruments for open release alongside the paper

## AI Communication & Help-Seeking Survey — Pre-Registered Cross-Sectional Study

Human-AI Interaction · Survey Design · Psychometrics · 2026

Pre-registration: [osf.io/5xzjs](https://osf.io/5xzjs)

- Designed, pre-registered, and conducted a cross-sectional survey (N=55; 30 AI users, 25 non-users) comparing AI companion users and non-users on validated communication measures (SDI, PRCA-12, WHO-5, UCLA-3, Mini-SPIN, BFI-10)
- Developed two original psychometric scales with acceptable reliability: Perceived Emotional Safety with AI (5 items,  $\alpha=.86$ ) and AI Help-Seeking Behavior (5 items,  $\alpha=.81$ )
- Recruited via Prolific Academic with equal-pay design, stealth attention checks, and ACM ethics self-certification following Belmont Report principles
- Identified a key dissociation: emotional safety with AI predicts help-seeking behavior ( $r=.51$ ,  $p=.004$ ) but not interpersonal self-disclosure ( $r=.11$ , ns), confirmed via Steiger test for dependent correlations ( $p=.022$ )
- Found that 57% of AI users reported subsequently seeking professional help for issues first discussed with AI, supporting a “gateway” rather than “replacement” interpretation
- Analysis: Welch’s t-tests with Bonferroni correction, progressive ANCOVA, parallel regression ( $R^2=.56$ ), reflexive thematic analysis

## Master’s Thesis Proposal — Effects of Yoga on Injuries Associated with Long-Distance Running

California Baptist University · 2018–2019

[View Thesis Proposal \(PDF\)](#)

- Proposed a two-arm randomized controlled trial (N=50; 25 experimental, 25 control) with 12-week Hatha Yoga intervention to investigate overuse injury prevention in distance runners aged 22–35 with marathon experience
- Conducted a literature review of 20 peer-reviewed articles spanning biomechanics, neuromuscular physiology, and motor control
- Developed a multimodal data collection protocol integrating EMG, goniometry, postural analysis (Kent Grid), standardized ROM tests (Thomas, Ober’s, SLR), and the Oslo Sports Trauma Research Center Overuse Injury Questionnaire
- Prepared full IRB submission with block randomization stratified by sex, allocation concealment, informed consent, and ethical oversight protocols per 45 C.F.R. 46
- Formulated statistical analysis plan: 2×2 mixed-design ANOVA with a priori power analysis (G\*Power,  $f=0.25$ ,  $\alpha=0.05$ , power=0.80), intent-to-treat with multiple imputation, and Bonferroni correction for family-wise error control

## TECHNICAL SKILLS

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<b>AI / LLM Systems</b>	TensorFlow, Keras, scikit-learn, LLM orchestration (Claude, Gemini, GPT, Grok), multi-model pipeline design, prompt engineering for production systems, retrieval-augmented generation (RAG), adversarial evaluation design
<b>Research Methods</b>	Experimental design (RCT), mixed-design ANOVA, ANCOVA, Welch’s t-tests, a priori power analysis, sensitivity analysis, intent-to-treat analysis, longitudinal study design, cross-sectional survey design, psychometric scale development, OSF pre-registration, autoethnographic methods, multi-method triangulation, reflexive thematic analysis, instrument development (HERVAC, Emotional Safety, Help-Seeking Behavior), cross-domain comparative analysis, online recruitment (Prolific), ACM ethics self-certification, IRB protocol, SPSS
<b>Applied ML &amp; CV</b>	MediaPipe pose estimation, Variational Autoencoders, Random Forest classification, Bayesian Knowledge Tracing, computer vision for human movement, psychoacoustic DSP (Web Audio API), biomechanical feature engineering

<b>Systems &amp; Deployment</b>	React, TypeScript, Capacitor 8 (iOS/Android), Supabase, Git/GitHub, AWS, Cloudflare Pages, R (tidyverse, psych, effsize), LaTeX, Figma
<b>Physiological Assessment</b>	Surface EMG (electrode placement, signal acquisition), goniometry and ROM assessment, graded exercise testing (VO2max, metabolic cart), 12-lead ECG monitoring, spirometry, body composition (skinfold calipers, BIA, hydrostatic weighing), sphygmomanometry, force plate analysis, Functional Movement Screen (FMS), clinical exercise programming for special populations

## PROFESSIONAL EXPERIENCE

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### Founder & Engineer, Meridian Labs 2025–Present

Research, design, engineering, deployment, and support for a 28-app adaptive learning platform across four certification verticals, built and operated as a solo researcher.

### Technology Industry 2017–2025

Emerging technology analysis, infrastructure administration, and project management across decentralized systems and blockchain platforms. Distributed network operations, cross-functional coordination, and early adoption of generative AI tools for research and analysis workflows.

## MILITARY SERVICE

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### C-17 Aircraft Loadmaster, 21st Airlift Squadron, U.S. Air Force, Travis AFB, CA 2010–2014

Senior Airman (E-4) · 60th Air Mobility Wing · Honorable Discharge

- Completed 455 airlift sorties and 1,977 flight hours in the C-17 Globemaster III across Operations Enduring Freedom, Iraqi Freedom, and New Dawn, with the majority of missions supporting active combat theater operations
- Transported 9,400 passengers and 13.5 million pounds of cargo across aeromedical evacuation, presidential support, and humanitarian relief missions worldwide
- Executed humanitarian airlift operations during Hurricane Sandy disaster response (2012), supporting relief efforts for the Eastern Seaboard
- Designated subject matter expert on C-17 cargo compartment hydraulics, electrical, and avionics systems; completed SERE combat survival, water survival, and emergency parachute training

## HONORS & AWARDS

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- Air Medal
- Humanitarian Service Medal
- Air Force Achievement Medal
- Meritorious Unit Award; Outstanding Unit Award (OLC)
- Cum Laude, Distinction in Kinesiology (SDSU)
- Dean’s List (SDSU)

## SELECTED CERTIFICATIONS

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- AWS Certified Machine Learning Engineer – Associate (MLA-C01)
- Google Cloud Certified — Generative AI Leader
- IBM Generative AI Engineering Professional Certificate
- Discrete Mathematics Specialization (UC San Diego)
- Google Cybersecurity Professional Certificate
- NSCA Certified Strength & Conditioning Specialist
- Registered Yoga Teacher — 500 Hour (Yoga Alliance)

## LANGUAGES

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English (native) · German (native) · Spanish (fluent)

## REFERENCES

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Available upon request.