FRANK BROCKMANN

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RESEARCH INTERESTS

Human-AI collaboration and interaction design • Culturally-responsive systems development • Computational media for education • AI governance in indigenous communities • Conversational media as identity technology • Computational scaffolding for interpretation and meaning-making

EDUCATION

M.B.A., General Business Administration
University of Phoenix, San Jose, CA - 2001

B.A., Literature/Creative Writing
University of California, Santa Cruz, Porter College - 1993

APPLIED RESEARCH

The KĀʻEO AI Lab: AI-Assisted Evaluation of Test Items in Hawaiian Language Assessments
Lead system designer, University of Hawaiʻi at Mānoa, College of Education · 2025

- Designed and implemented an **LLM-based diagnostic system** that performs forensic analysis of psychometrically flagged Hawaiian-language assessment items to surface qualitative failure patterns.
- Developed a **multi-phase framework** integrating item statistics with systematic analysis of cognitive mismatches, linguistic barriers, and construct-irrelevant variance to produce structured diagnostic reports.
- Enabled cross-item pattern recognition across Hawaiian Language Arts, Mathematics, and Science within a **closed, policy-constrained AI workflow**, generating bilingual narrative recommendations that preserve human linguistic authority.
- Bridges HCI, NLP for low-resource languages, and educational measurement; **preprint in preparation** with Pohai Kūkea-Shultz.

AI Governance Frameworks for Indigenous Data Sovereignty
Policy architect, KĀʻEO Program (Hawaiʻi DOE) & F.E.A.S.T. · 2024–present

- Led development of comprehensive **AI ethics and governance frameworks** that operationalize indigenous data sovereignty, human-in-the-loop mandates, and bias mitigation in assessment and nonprofit care contexts.
- Defined constraints for **closed, auditable AI workflows**, including restrictions on Hawaiian language data use, documentation requirements, and clear attribution of AI versus human contributions.
- Frameworks now guide technology and AI adoption decisions across the KĀʻEO project and F.E.A.S.T., serving as a template for community-governed AI practice.

Information Architecture as Care Infrastructure (F.E.A.S.T.)
Director of Technology Services, F.E.A.S.T. · 2020–present

- Designed and implemented **workflow and data architectures** for an international nonprofit serving eating-disorder caregivers, including Salesforce schema, donation pipelines, and integrated web infrastructure.

- Built and maintained content production pipelines (podcast, impact reports, targeted email campaigns) that coordinate multiple platforms and automate routine tasks, framing them as computational supports for caregiver communities.

- Drafted and implemented organization-wide AI and data governance policies that shape technology strategy and safeguard caregiver and donor data.

- Research focus: how computational tools and information architecture can sustain care infrastructure under chronic resource constraints.

Computational Infrastructure for Indigenous Language Assessment (KĀʻEO)
Lead technical architect, Kaiapuni Assessment of Educational Outcomes (KĀʻEO) · 2016–present

- Developed a suite of interoperating applications supporting the first federally peer-reviewed Hawaiian-language assessment, including real-time item selection tools, test sequencing and QA utilities, and bilingual reporting interfaces.

- Designed and implemented multi-day remote item review processes with Hawaiian language educators, integrating custom digital workflows with psychometric review practices.

- Combined user-centered design, educational measurement, and culturally-responsive technology principles to maintain linguistic and cultural authority with the Hawaiian immersion community while scaling statewide assessment metadata infrastructure.

PUBLICATIONS

Kūkea-Shultz, P. & Brockmann, F. (2025). *Bridging Psychometric and Content Development Practices with AI: A Community-Based Workflow for Augmenting Hawaiian Language Assessments.* arXiv preprint. [link]

Brockmann, F. (2019–2023). Technical documentation suite for the Kaiapuni Assessment of Educational Outcomes (KĀʻEO), submitted as part of federal peer review under ESEA:

- *KĀʻEO Test Specifications*
- *KĀʻEO Item Specifications and Style Guide (bilingual Hawaiian/English)*
- *KĀʻEO Item Development Manual*

Documentation contributed to a successful federal peer review decision (U.S. Department of Education, 2022). decision letter

Technical monographs and research reports for the Council of Chief State School Officers (CCSSO):

Auty, B. and Brockmann, F. (2012). *Growth Model Comparison Study: A Summary of Results.*

Brockmann, F. (2011). *Commonly unrecognized error variance in statewide assessment programs.*

Brockmann, F., & Ryan, J. (2009). *A practitioner's introduction to equating with primers on classical test theory and item response theory.* (Book-length technical monograph.)

PROFESSIONAL EXPERIENCE

Founder / President

Center Point Assessment Solutions, Inc., Sacramento, CA 2004 - Present

Research-based consulting for universities, state education agencies, and nonprofits in K–12 assessment. Led user-centered design and iterative prototyping of custom assessment applications and data visualization tools.

Assessment Content Development Supervisor

CTB/McGraw-Hill, Monterey, CA 1994 - 2004

Supervised content development and workflow design for multiple statewide assessment programs, including oversight of a custom test-bank software project and associated quality assurance.

TEACHING & WORKSHOP FACILITATION

Professional Development Facilitator

University of Hawai'i at Mānoa 2015 - Present

Designed and facilitated workshops for Hawaiian-medium educators on assessment development, universal design, data interpretation, and secure bias / fairness / sensitivity / accessibility reviews. Emphasis on culturally-responsive approaches and the practical application of assessment data management systems.

Volunteer Educator & Mentor

F.E.A.S.T. & UC San Diego Eating Disorders Center 2020 - 2024

Facilitated educational mentoring for caregivers; coordinated mentor program and assignments with clinical staff.

Workshop Co-Facilitator & Curriculum Designer

Project Lead The Way 2017 - 2019

Designed and co-led teacher workshops on assessment and framework alignment for national PLTW institutes (Indianapolis), including two training modules on assessment design and interpretation for STEM teachers.

TECHNICAL COMPETENCIES

Programming: JavaScript, HTML/CSS, Python

Systems & Platforms: Git/GitHub, Google Workspace (Admin certified), Salesforce (Admin), WordPress (Admin), Adobe Creative Suite, static site generators (GitHub Pages)

AI & Data: LLM-based workflows (context engineering, prompt design, constrained pipelines, human-in-the-loop evaluation), interpretation of psychometric data (item statistics, DIF analysis), dashboarding and reporting

Methods: User-centered design, iterative prototyping, usability testing, workshop facilitation, documentation for non-technical stakeholders

Domains: Large-scale educational assessment, indigenous and low-resource language contexts, nonprofit and care-infrastructure systems, workflow automation

SERVICE

Board Member, F.E.A.S.T. • Chair, Technical Advisory Committee, F.E.A.S.T. • Member, Experts by Experience Committee, Academy for Eating Disorders • Former Mentor and Coordinator, Parent Advisory Committee, UC San Diego Eating Disorders Center