UC Bearcat AI Grants Proposal

ID Career Sorter App: Personalizing Industrial Design Education
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Submission Date: May 30, 2025

1 Project Summary

The ID Career Sorter App is an ethical AI-powered web platform designed to transform industrial design (ID) education at the University of Cincinnati (UC) by tailoring learning experiences to each student's unique interests and talents. Using a Neo4j graph database and natural language processing (NLP), the app maps childhood passions (e.g., building LEGO, drawing spaceships) to ID career paths (e.g., toy design, concept art), delivering personalized curricula, resources, and industry connections. AI in teaching leverages computational power to analyze individual student profiles and adapt educational content, enhancing engagement, clarifying career ambitions, and fostering a deeper interest in ID. This project will pilot the app with 50 students in the College of DAAP, aligning with UC's mission for innovative, student-centered education, and measure its impact on students' enthusiasm for ID and the app's relevance to their career goals.

2 Project Description

2.1 Background and Significance

Industrial design spans diverse subfields, from product design to interactive media, making it challenging for students to find a focus that resonates with their passions. Traditional advising often lacks the precision to align individual interests with specific career paths, leaving students overwhelmed. The ID Career Sorter App addresses this by using AI to deliver tailored guidance, akin to a personalized career compass. Its Neo4j database (idcareersorter) stores 35 interests (e.g., playing with action figures), 28 skills (e.g., prototyping), and 25 roles (e.g., toy designer), connected by relationships. NLP, powered by the sentence-transformers model, matches free-text inputs (e.g., "I loved crafting with clay") to relevant careers, ensuring flexibility for diverse inputs.

AI in Teaching: A Primer for the Committee
AI in teaching uses algorithms to analyze data—here, students' interests—and generate customized educational experiences. Unlike generic advising, AI can process vast datasets to identify patterns (e.g., linking LEGO-building to toy design skills) and recommend precise learning paths (e.g., a 3D modeling course). This personalization boosts motivation by making education feel relevant, as students see their passions reflected in their studies. For ID, where creativity and individuality are paramount, AI ensures no student is funneled into a one-size-fits-all curriculum. The app's ethical AI framework prioritizes transparency, fairness, and privacy, making it a safe, inclusive tool for UC's diverse student body. By

integrating with UC's academic systems, it supports students from enrollment to graduation, enhancing both pedagogy and career readiness.

2.2 Objectives

- Develop an AI-driven app to match students' interests to ID subfields (e.g., toy design, footwear design).
- Curate personalized curricula and resources to spark enthusiasm for ID.
- Facilitate industry connections to clarify career ambitions.
- Evaluate the app's impact on students' interest in ID and its relevance to their career goals.

2.3 Methodology

The project will unfold in three phases over one year:

1. Development (June–August 2025): Build the app using Python, a Streamlit web interface, and Neo4j. Create an interest assessment module (e.g., a quiz asking, "What did you love as a kid?"), a resource database (e.g., Udemy courses), and a networking portal for industry contacts. Ensure ethical AI with transparent algorithms, bias-free recommendations, and secure data handling.
2. Pilot Implementation (September–December 2025): Deploy to 50 DAAP ID students. Collect feedback through surveys (e.g., "Did the app increase your interest in ID?") and focus groups to refine features.
3. Evaluation and Scaling (January–April 2026): Assess outcomes using surveys and interviews, focusing on interest in ID and career clarity. Present findings at the UC AI & Emerging Tech Symposium (February 2026) and submit reports.

2.4 Ethical AI Considerations

The app adheres to ethical AI principles:

- Transparency: Displays how recommendations are made (e.g., "Your interest in LEGO suggests toy design due to prototyping skills").
- Fairness: Avoids biases (e.g., gender-neutral career suggestions).
- Privacy: Uses anonymized, FERPA/GDPR-compliant data storage.
- Accountability: Incorporates student feedback to improve algorithms.

3 Pedagogy Focus

The ID Career Sorter App redefines pedagogy by harnessing AI to create individualized learning paths, a cornerstone of modern education. For example, a student passionate about action figures might receive a curriculum emphasizing toy design, with courses in user-centered design and prototyping. AI analyzes their interests to recommend specific projects (e.g., "Design a modular action figure"), increasing engagement by connecting coursework to personal passions. Instructors gain data on student progress (e.g., project milestones), enabling tailored feedback that enhances learning outcomes. By curating resources like online tutorials, the app ensures students build skills aligned with their career aspirations, fostering a sense of purpose and excitement about ID.

Benefits of Personalized Education
Personalized education, powered by AI, improves motivation and retention by making learning relevant. Unlike traditional curricula, which may feel disconnected from students' interests, the app ensures every course and project resonates with their unique profile. This approach is particularly vital in ID, where creativity thrives on individuality. For committee members new to AI in teaching, consider how a tailored curriculum mirrors a mentor who knows each student deeply—AI scales this intimacy, making personalized education feasible for all 50 pilot students and beyond.

4 Student Life Focus

The app transforms student life by:

- Boosting Interest in ID: Gamified quizzes (e.g., "What's your design passion?") make career exploration fun, sparking enthusiasm for ID subfields.
- Clarifying Career Ambitions: Clear career paths (e.g., "Your love for video games suits interaction design") reduce uncertainty and align studies with goals.
- Career Education: Connects students to professionals (e.g., Hasbro designers) via email templates and curated contacts, building confidence in career prospects.
- Alumni Engagement: Links students with UC ID alumni for mentorship, creating a supportive community.

Its mobile-friendly interface ensures accessibility, enhancing academic and social experiences.

5 Expected Outcomes

- Quantitative: 80% student satisfaction with the app; 90% report increased interest in ID (measured via surveys); 85% find the app relevant to defining career ambitions (e.g., choosing toy design over general ID).

- Qualitative: Greater enthusiasm for ID coursework; clearer career goals; stronger faculty-student and UC-industry relationships.

6 Timeline

- June–August 2025: Develop app and database.
- September–December 2025: Pilot with 50 students; submit mid-year report (November 14, 2025).
- January–February 2026: Evaluate pilot; present at UC AI & Emerging Tech Symposium (February 2026, TBD).
- March–April 2026: Finalize evaluation; submit end-of-year report (April 17, 2026).

7 Budget

Total request: $5,000

- Personnel ($3,000): Salaries for AI developer (10 hours/week, 3 months) and student assistant.
- Technology ($1,000): Cloud hosting (AWS) and open-source software.
- Resources ($500): Free tutorials and symposium materials.
- Evaluation ($500): Survey tools and focus group incentives.

8 Qualifications

John Violette (PI): Adjunct Professor at UC DAAP with 26 years of ID experience in footwear, toys, entertainment, and product design. Expert in AI implementation and mentoring students for career success.

9 Conclusion

The ID Career Sorter App leverages ethical AI to personalize ID education at UC, aligning with the Bearcat AI Grants' focus on pedagogy and student life. By tailoring curricula to individual interests, it ignites enthusiasm for ID and clarifies career ambitions, empowering students and strengthening UC's ID program. We respectfully request $5,000 to bring this vision to life.