

Ananya Nandy

Ph.D. Candidate @ UC Berkeley · Behavioral Science, Human-Centered Computing, & Design Creativity

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Education

University of California, Berkeley <i>Ph.D. Mechanical Engineering (GPA: 3.97/4.0)</i>	Expected Aug 2024 Berkeley, CA
University of California, Berkeley <i>M.S. Mechanical Engineering</i>	Dec 2022 Berkeley, CA
Massachusetts Institute of Technology (MIT) <i>B.S. Mechanical Engineering (GPA: 4.9/5.0)</i>	Jun 2019 Cambridge, MA

Research Experience

UC Berkeley – Co-Design Lab <i>Graduate Researcher (Advised by Dr. Kosa Goucher-Lambert)</i>	Aug 2019 – Present Berkeley, CA
<ul style="list-style-type: none">Conceptualized and conducted studies to investigate human behavior and decision making during design.Developed and deployed multiple interactive interfaces to collect data for studies (web-based and virtual reality).	
Cognitive and Computational Representations of Similarity <ul style="list-style-type: none">Investigated methods (e.g., network modeling) to quantitatively determine functional similarity between designs.Developed psychological embeddings of functional similarity for comparison.	
Interactivity and Immersion During Decision Making <ul style="list-style-type: none">Investigated ways to personalize designs along subjective dimensions using interactive preference learning models.Characterized the impact of suggestions during AI-assisted design decision making in uncertain scenarios.Developed and tested novel spatial interactions for large-scale design space exploration in VR.	
Toyota Research Institute – Future Product Innovation Group <i>Human-Centered AI Research Intern (Advised by Dr. Shabnam Hakimi and Dr. Matthew Klenk)</i>	May 2023 – Aug 2023 Los Altos, CA
Text-to-3D by Humans <ul style="list-style-type: none">Led project to characterize the relationship between psycholinguistics and multi-modality (text, 3D) during design.Developed interactive interface to log actions and deploy study online at scale.	

Skills

Research Methods: Experimental Design, Statistical Analysis, Computational Modeling, Interactive Interfaces
Languages: Python, R, HTML/CSS/Javascript, C# (for Unity & Rhino/Grasshopper), MATLAB
Tools, Packages, & Software: Unity, Flask, Python Data Science Stack (pandas, numpy, scipy, scikit-learn, BoTorch), CAD (Autodesk Fusion 360, SolidWorks, OpenSCAD/JSCAD)
Other: Prototyping & Fabrication (3D Printing, Laser Cutter, Machining, Basic Electronics/Arduino/Raspberry Pi)
Relevant Coursework: Bayesian Models of Cognition, Immersive Computing & Virtual Reality, Algorithmic Human-Robot Interaction, Data Science, Designing for Emerging Technologies, User Interface Design, Machine Learning

Publications

Peer-Reviewed Journal Articles

- Adopting “Blackbox” Design Advice: The Influence of Imperfect Suggestions during AI-Assisted Decision Making
Ananya Nandy, David Antonio Herrera, Kosa Goucher-Lambert
Design Science. Under Review.
- Do Human and Computational Evaluations of Similarity Align? An Empirical Study of Product Function
Ananya Nandy, Kosa Goucher-Lambert
Journal of Mechanical Design. April 2022.
- Evaluating Quantitative Measures for Assessing Functional Similarity in Engineering Design
Ananya Nandy, Andy Dong, Kosa Goucher-Lambert
Journal of Mechanical Design. March 2022. ★ **Featured Article**

Peer-Reviewed Conference Proceedings

1. Semantic properties of word prompts shape design outcomes: understanding the influence of semantic richness and similarity
Ananya Nandy, Monica Van, Jonathan Li, Kosa Goucher-Lambert, Matthew Klenk, Shabnam Hakimi
Design Computing and Cognition (DCC'24). Under Review.
2. Adaptive Optimization of Subjective Design Attributes: Characterizing Individual and Aggregate Perceptions
Ananya Nandy, Kosa Goucher-Lambert
ASME International Design Engineering Technical Conferences (IDETC'23). August 2023.
3. VR or Not? Investigating Interface Type and User Strategies for Interactive Design Space Exploration
Ananya Nandy, James Smith, Nicholas Jennings, Michael Kuniavsky, Björn Hartmann, Kosa Goucher-Lambert
International Conference on Engineering Design (ICED'23). July 2023.
4. How does machine advice influence design choice? The effect of error on design decision making
Ananya Nandy, Kosa Goucher-Lambert
Design Computing and Cognition (DCC'22). July 2022. 🏆 **Best Paper in Design Cognition/Neurocognition**
5. Aligning Human and Computational Evaluations of Functional Design Similarity
Ananya Nandy, Kosa Goucher-Lambert
ASME International Design Engineering Technical Conferences (IDETC'21). August 2021. ★ **Nominated for Best Design Theory & Methodology Paper**
6. A Comparison of Vector and Network-Based Measures for Assessing Design Similarity
Ananya Nandy, Andy Dong, Kosa Goucher-Lambert
ASME International Design Engineering Technical Conferences (IDETC'20). August 2020.

Extended Abstract & Workshop Papers

1. GeneratiVR: Spatial Interactions in Virtual Reality to Explore Generative Design Spaces
Nicholas Jennings, **Ananya Nandy**, Xinyi Zhu, Yuting Wang, Fanping Sui, James Smith, Björn Hartmann
ACM Conference on Human Factors in Computing Systems Extended Abstracts (CHI '22 LBW). May 2022.
2. Considerations for Collaborative Human-AI Decision-Making in Engineering Design
Ananya Nandy, Kosa Goucher-Lambert
NeurIPS 2021 Workshop on Human Centered AI. December 2021.

Teaching

Human-Centered Design Methods (MECENG292C/DESINV190) <i>Graduate Student Instructor</i> <ul style="list-style-type: none">• Mentored 14 graduate-level teams through human-centered design process each semester. 🏆 Outstanding Graduate Student Instructor Award (2020)	Fall 2020, 2022, 2023 UC Berkeley
Design Methodology (DESINV15) <i>Graduate Student Instructor</i> <ul style="list-style-type: none">• Mentored 14 undergraduate-level teams in introduction to human-centered design and gave guest lecture.	Spring 2022 UC Berkeley
Prototyping and Fabrication (DESINV22) <i>Graduate Student Instructor</i> <ul style="list-style-type: none">• Assisted students from interdisciplinary backgrounds complete projects for remote prototyping class.	Summer 2021 UC Berkeley

Service & Mentorship

Graduate Women in Engineering Board <i>New Student Committee Chair</i> <ul style="list-style-type: none">• Leading committee to organize outreach, professional development, and mentorship for first-years.	Aug 2023 – Present
UC Berkeley Master of Engineering Capstone Mentor A. Baradaran, R. Oberoi, V. Kansal: Trust Measurement for Human-Machine Interaction	Sept 2023 – May 2024
UC Berkeley Engineering Design Scholar Program Mentor Antonio Herrera: Human-AI Interactions in Engineering Design (co-author on journal paper)	Jun 2023 – Aug 2023
Resham Khanna: XR as a Design Aid	Jun 2021 – Aug 2021
Amy Jiang: Encouraging Sustainable Behavior through Gaming	Jun 2020 – Aug 2020