Krithik Ranjan

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EDUCATION

University of Colorado Boulder

AUG 2022 - MAY 2026

Ph.D. Creative Technology and Design, ATLAS Institute
Advisors: Ellen Yi-Luen Do, Michael Rivera

Cornell University

AUG 2018 - MAY 2022

B.Sc. Electrical and Computer Engineering, College of Engineering

RESEARCH & PROFESSIONAL EXPERIENCE

Graduate Research Assistant, ATLAS Institute, CU Boulder

AUG 2022 - PRESENT

Advisors: Prof. Ellen Do, Prof. Michael L. Rivera
Designing and researching creative learning technologies and tangible, multimodal interfaces. [P1, P2, P4, S2, S3]

Graduate Research Assistant, Craft Tech Lab, CU Boulder

JUN 2024 - SEP 2024

Advisor: Prof. Ann Eisenberg
Explored a multimodal platform for physical computing involving electronic prototyping and paper-based, CV-driven tangible interaction. [S1]

Undergraduate Research Assistant, Cornell University

FEB 2021 - MAY 2022

Hybrid Body Lab, Advisor: Prof. Cindy Hsin-Liu Kao
Supported the research and design of construction toolkits for on-skin interfaces. [P6]

JAN 2021 - JAN 2022

Meta Design & Technology Lab, Advisor: Prof. Jay Yoon
Designed a custom smart speaker platform to research UX writing styles in voice-based AI assistants. [P3]

JUN 2020 - MAY 2021

Batten Research Group, Advisor: Prof. Christopher Batten
Developed, optimized, and evaluated PyTorch operations on a manycore computer architecture. [P7]

Embedded Software Intern, Qualcomm Technologies Inc.

JUN 2021 - AUG 2021

Core 5G Software Team, QCT-SW
Analyzed critical timeline and memory constraints in 5G firmware and developed a debugging tool for detecting invalid 5G configurations.

TEACHING EXPERIENCE

Graduate Teaching Assistant, CU Boulder

SPRING 2024 — **ATLS 2270 Computational Foundations II**

SPRING 2023 — **ATLS 3300 Object (Physical Computing)**

Undergraduate Teaching Assistant, Cornell University

FALL 2020 — **ECE 2400 Computer Systems Programming**

SPRING 2020 — **ECE 2100 Circuits**

FALL 2019 - SPRING 2020 — **MATH 1110 Calculus & MATH 1120 Calculus II**

PUBLICATIONS

FULL PAPERS

[P1] Krithik Ranjan, S. Sandra Bae, Peter Gyory, Ellen Yi-Luen Do, Clement Zheng, Rong-Hao Liang. **Why (Not) ReacTIVision: Challenges and Opportunities for Building Tangible User Interfaces with Computer Vision Toolkits.** In ACM Tangible, Embedded, and Embodied Interaction (TEI) 2026. (conditionally accepted).

[P2] Krithik Ranjan, Anika Mahajan, Rishi Vanukuru, Ellen Yi-Luen Do. **The Design Space of Tangible Interfaces for Computational Tinkerability.** In Constructionism Conference Proceedings 2025. DOI.

[P3] Youngsoo Shin, **Krithik Ranjan**, Michael C. Kowalski, Jay Yoon. **Towards Personalized AI-powered Recommender Systems to Support Users' Daily Music Choice Experiences.** In International Journal of Human-Computer Studies 2025. DOI.

[P4] Krithik Ranjan, Peter Gyory, Seneca Howell, Therese Stewart, Michael L. Rivera, and Ellen Yi-Luen Do. **Cartoonimator: A Paper-based Tangible Kit for Keyframe Animation.** In ACM Tangible, Embedded, and Embodied Interaction (TEI) 2025. DOI.

[P5] Rishi Vanukuru, Suibi Che-Chuan Weng, **Krithik Ranjan**, Torin Hopkins, Amy Banic, Mark D. Gross, Ellen Yi-Luen Do. **DualStream: Spatially Sharing Selves and Surroundings using Mobile Devices and Augmented Reality.** In IEEE International Symposium on Mixed and Augmented Reality (ISMAR) 2023. DOI.

[P6] Pin-Sung Ku, Md. Tahmidul Islam Molla, Kunpeng Huang, Priya Kattappurath, **Krithik Ranjan**, and Hsin-Liu (Cindy) Kao. **SkinKit: Construction Kit for On-Skin Interface Prototyping.** In ACM Interactive Mobile Wearable Ubiquitous Technologies (IMWUT) 2021. DOI.

[P7] A Tensor Processing Framework for CPU-Manycore Heterogeneous Systems. Lin Cheng, Peitian Pan, Zhongyuan Zhao, **Krithik Ranjan**, Jack Weber, Bandhav Veluri, Seyed Borna Ehsani et al. In IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD) 2021. DOI.

SHORT PAPERS AND POSTERS

[S1] Krithik Ranjan, Ann Eisenberg, Brett L. Fiedler, Jesse Greenberg, Taliesin L. Smith, Emily B. Moore. **Physical Computing with Paper Playground: Exploring a Multimodal Platform.** In ACM Tangible, Embedded, and Embodied Interaction (TEI) 2025. DOI.

[S2] Krithik Ranjan, Peter Gyory, Michael L. Rivera, and Ellen Yi-Luen Do. **Cartoonimator: A Low-cost, Paper-based Animation Kit for Computational Thinking.** In ACM Interaction Design and Children (IDC) 2023. DOI.

[S3] Peter Gyory, **Krithik Ranjan**, Zhen Zhou Yong, Clement Zheng, and Ellen Yi-Luen Do. **Directing Tangible Controllers with Computer Vision and Beholder.** In SIGGRAPH Asia Emerging Technologies 2022. DOI.

MAGAZINE ARTICLES

[M1] Krithik Ranjan. Paper, Scissors, Code: A Creative and Affordable Approach to Learning Computational Thinking. In Samuhik Pahal Vol. 3 Issue 11, September 2023.

[M2] Amulya Khurana*, **Krithik Ranjan*,** Aparajito Saha*. **AroundSound: Digital Echolocation for the Visually Impaired.** In Circuit Cellar #386, September 2022. Link**.**

HONORS

2025 **Constructionism 2025 Student Scholarship,** Swiss NSF — CHF 1800
2023 - 2025 **Conference Travel Grants,** CU Boulder — $500 - $1000
2023 - 2024 **Dr. Awtar and Teji Singh Graduate Fellowship,** CU Boulder — $20,000
2018 - 2022 **Tata Scholarship**, Cornell University — 100% financial aid
2018 - 2022 **Dean's List**, College of Engineering, Cornell University

MENTORING

2025 **Ishita Badole,** M.Sc. CS, University of Colorado Boulder
2024 - 2025 **Anika Mahajan,** Ph.D. CTD, University of Colorado Boulder [P2]
2025 **Nicole Stackmann,** M.Sc. CTD, University of Colorado Boulder
2023 - 2024 **Lena Rakkah**, Boulder Valley School District
2024 **Seneca Howell**, B.Sc. CTD, University of Colorado Boulder [P4]
2024 **Therese Stewart**, Community College of Denver [P4]
2024 **Ashley Stafford**, B.Sc. CTD, University of Colorado Boulder
2024 **Jack Good**, B.A. CS, Cornell University
2023 **Ignatius Nwankwo,** B.Sc. EE, Morgan State University [S2]
2023 **Sergio Bustamente**, B.Sc. EE, University of Florida

ACADEMIC SERVICE

Invited Conference Reviewer

2026 ACM Human Factors in Computing Systems (CHI)
2024-2026 ACM Tangible, Embodied, Embedded Interaction (TEI)
2025 ACM Designing Interactive Systems (DIS)
2023-2024 ACM Interaction Design and Children (IDC)