

Alexander Redding

✉ alredding@ucsd.edu

👤 alexanderredding.com

Education

University of California San Diego <i>Ph.D. Computer Science (In progress)</i> Advisors: Ryan Kastner, Pat Pannuto	2022 – Present La Jolla, CA
Northwestern University <i>B.A. Computer Science</i>	2018 – 2022 Evanston, IL

Research Experience

University of California San Diego <i>Research Assistant</i> Advisors: Ryan Kastner, Pat Pannuto	Jan. 2022 – Present La Jolla, CA
University of California San Diego <i>Research Assistant</i> Advisor: Tajana Šimunić Rosing (rotation)	Sept. – Dec. 2022 La Jolla, CA
Northwestern University <i>Research Assistant</i> Advisor: Josiah Hester	May 2021 – Sept. 2022 Evanston, IL
Northwestern University <i>Laboratory Assistant</i> Advisor: Marcelo Worsley	Nov. 2020 – May 2021 Evanston, IL

Employment

AMD <i>Research Assistant</i>	June – December 2024 San Diego, CA
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Fellowships and Memberships

Qualcomm Innovation Fellowship Finalist Joint with Abarajithan Gnanewaran	2024
Department of Computer Science and Engineering First-Year Rotation Fellowship University of California San Diego	2022 – 2023
Society of Hispanic Professional Engineers	2020 – Present

Publications

Open-CFR: Open-source Co-design Framework for Redundancy with DPR in COTS FPGA SoCs Francesco Restuccia, Biruk Seyoum, <u>Alexander Redding</u> , Zhenghua Ma, Guy Eichler, Ryan Kastner. In <i>Proceedings of the 2024 IEEE Space Mission Challenges for Information Technology (SMC-IT)</i> . Mountain View, CA. July 2024	SMC-IT/SCC 2024
Architectural Implications of Neural Network Inference for High Data-Rate, Low-Latency Scientific Applications Olivia Weng, <u>Alexander Redding</u> , Nhan Tran, Javier Mauricio Duarte, Ryan Kastner. In <i>arXiv:2403.08980</i> .	arXiv 2024
Perceptions of Wearable Health Tools Post-COVID 19 in Low-income Latine Communities Stefany Cruz, Claire Lu, Mara Ulloa, Alexander Redding, Josiah Hester, Maia Jacobs. In <i>Proceedings of the 2024 Journal of Medical Internet Research mHealth and uHealth (JMIR mHealth and uHealth)</i> .	JMIR 2024

Practical Obfuscation of BLE Physical-Layer

S&P 2024

Hadi Givehchian, Nishant Bhaskar, Alexander Redding, Han Zhao, Aaron Schulman, Dinesh Bharadia.
In *Proceedings of the 2024 IEEE Symposium on Security and Privacy (S&P)*.
San Francisco, CA. May 2024

EmbHD: A Library for Hyperdimensional Computing Research on MCU-Class Devices

NET4us 2023

Alexander Redding, Xiaofan Yu, Shengfan Hu, Pat Pannuto, Tajana Rosing.
In *Proceedings of the 2nd Workshop on Networked Sensing Systems for a Sustainable Society (NET4us)*.
Madrid, Spain. October 2023

EquityWare: Co-Designing Wearables With and For Low Income Communities

CHI 2023

Stefany Cruz, Alexander Redding, Connie W. Chau, Claire Lu, Julia Persche, Josiah Hester, Maia Jacobs.
In *Proceedings of the 2023 Conference on Human Factors in Computing Systems (CHI)*.
Hamburg, Germany. April 2023

Presentations

EmbHD: A Library for Hyperdimensional Computing Research on MCU-Class Devices

Oct. 6, 2023

2nd Workshop on Networked Sensing Systems for a Sustainable Society. Madrid, Spain

Teaching

CSE 160: Introduction to Parallel Computing – *Teaching Assistant*

Spring 2024, 2025

- Topics include GPU kernel programming; and parallelization principles and applications.
- Refactored course materials to OpenCL to enable heterogeneous computing education.

CS 343: Operating Systems – *Peer Mentor*

Spring 2022

- Topics include concurrency, scheduling, virtual memory, and file systems.

CS 211: Fundamentals of Computer Programming II – *Peer Mentor*

Fall 2021, Winter 2022

- Topics include C and C++ programming, memory management, and the Unix shell.