

Research Visit Report: Promoting Gender Diversity in Integrated Circuit Design through International Collaboration*

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Abstract

This report summarizes the outcomes of a two-month research exchange by Ilayda Yaman at the University of Michigan. The activity aimed to foster international research collaboration in energy-efficient ML hardware while promoting the visibility and representation of women in integrated circuit design—a field where female participation remains significantly low. The report highlights both the technical advancements and the gender and diversity impact of the exchange.

1. Overview of Activities

From September to November 2024, I was hosted by the Lab for Efficient Application Processors (LEAPs), led by Prof. Zhengya Zhang at the Department of Electrical Engineering and Computer Science (ECE), University of Michigan. The group consisted of approximately 15 members, including Ph.D. students, one postdoctoral researcher, and two exchange students.

Throughout the exchange, I engaged in weekly technical meetings, design reviews, and individual discussions with Prof. Zhang and lab members. These interactions significantly deepened my knowledge of low-power ASIC design for ML applications and provided valuable feedback on my Ph.D. research.

2. Gender and Diversity Impact

A core goal of this exchange was to strengthen gender diversity in integrated circuit research, a field historically dominated by men. As one of the first

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female Ph.D. students in the Integrated Electronic Systems (IES) group at Lund University, I sought to represent and support underrepresented groups in STEM during my visit.

I actively participated in events organized by *Women in Electrical and Computer Engineering* (WECE), a student-run initiative aimed at building community among women and gender minorities in ECE. These events included discussions with female researchers and faculty, focusing on academic career pathways, leadership, and the importance of inclusive environments in engineering.

3. Dissemination and Outreach

Upon returning to Sweden, I gave two presentations on my experience:

- A motivational talk to the IES group at Lund University, encouraging other female Ph.D. students to pursue similar opportunities.
- A technical talk at the ELLIIT B2 Workshop, where I presented preliminary research results from the collaboration.

Both sessions sparked further interest in international mobility among peers and helped raise awareness of gender representation issues in academia.

4. Results and Expected Impact

This exchange has already yielded one conference paper [1], which was accepted and will be presented at the IEEE Asilomar Conference on Signals, Systems and Computers, 26-29 Oct 2025, Pacific Grove, USA. A second journal paper is in progress. It also reinforced academic ties between Lund University and the University of Michigan.

Beyond technical contributions, the exchange served as a platform to advocate for women in hardware research, promote an inclusive academic culture, and mentor early-career researchers. These efforts are expected to have a long-term impact on increasing diversity within the EIT environment.

References

- [1] I. Yaman, G. Tian, F. Tufvesson, O. Edfors, Z. Zhang, and L. Liu. *Adaptive attention-based model for 5G radio-based outdoor localization*, 2025.