Mannu Lambrichts

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EDUCATION

PH.D. IN COMPUTER SCIENCE
Hasselt University

Sept. 2019 – Sept. 2024
Hasselt, Belgium

Thesis: Democratizing Prototyping of Interactive Devices - A Unified Plug-and-Play Platform for Interconnecting and Driving Heterogeneous Electronic Components

- Investigated electronic prototyping workflows, emphasizing usability and user needs.
- Developed a framework to evaluate prototyping platforms, prioritizing user aspects over technical specifications.
- Designed solutions to simplify hardware assembly and streamline software integration across platforms.
- Proposed an advanced system to enable true plug-and-play functionality for heterogeneous electronic components.

MASTER IN COMPUTER SCIENCE (Cum Laude)
Hasselt University

Sept. 2017 – Sept. 2019
Hasselt, Belgium

Thesis: SoftMod - A Soft Modular Plug-and-Play Kit for Prototyping Electronic Systems

- This thesis presents SoftMod, a modular electronic kit for non-engineers that adapts its behavior based on assembly shape. Using stretchable cables and flexible modules, it supports diverse applications, from wearables to interactive textiles. SoftMod was presented at TEI 2020, alongside a novel DIY method for fabricating flexible PCBs, published as a Work-in-Progress.

BACHELOR IN COMPUTER SCIENCE (Cum Laude)
Hasselt University

Sept. 2014 – Sept. 2017
Hasselt, Belgium

Thesis: Tars - A Robot-Like Monitoring System for Medical Parameters

- This thesis explores a home-based monitoring solution for heart patients, combining a smartphone app with an external robot. Doctors handle the initial setup, while patients engage through a virtual pet game for motivation. The system offers clear, graphical feedback on health progress, supporting lifestyle changes and frequent vital monitoring from home.

EXPERIENCE

RESEARCHER
Hasselt University

Sept. 2024 – present
Hasselt, Belgium

- Contributing to a skill transfer research project by designing and implementing the hardware for a sensor system.

PH.D. STUDENT
Hasselt University

Sept. 2019 – Sept. 2024
Hasselt, Belgium

- Explored and designed systems to faciliate electronics prototyping using off-the-shelf components.

RESEARCH ASSISTANT (Summer Job)
Hasselt University

Jul. 2018 – Sept. 2018
Hasselt, Belgium

- Developed software for a research project integrating electronics into thermoformed plastic plates.
- Designed a system to determine electronics placement using calibration plates with reference markers and a 3D point cloud scanned post-thermoforming.

FRONT- AND BACKEND WEBDESIGN (Summer Job)
Houttechniek VanHam

Jul. 2017 – Sept. 2017

- Designed and implemented both the front- and back-end of a portfolio website.
- Developed a custom back-end application to enable dynamic management of project images across multiple category levels.

TEACHING EXPERIENCE

Computational Fabrication (4196 / 4719) *5 years*

Tools and Technologies for Interactive Systems Development (2184) *4 years*

Project Software Development and Professional Skills (2252) *1 year*

THESIS MENTORING

Master Theses

- Automated Enrichment of 3D Printed Parts	*2020-2021*
- Novel Electronics Prototyping Technologies	*2022-2023*
- Novel Measuring Techniques	*2024-present*

Bachelor Theses

- Packing of 3D Models for 3D Printing	*2020-2021*
- Electronics Toolkit of Self-Testing Modules	*2020-2021*
- Mobile Augmented Reality for Prototyping Sensor Systems	*2020-2021*
- Prototyping with Jacdac and Smart Adapters	*2021-2022*
- Jacdac Abstraction Layers	*2022-2023*
- Supporting Low-Volume PCB Prototyping Using Collaborative Robots and Augmented Reality	*2023-2024*

PUBLICATIONS

Beyond Prototyping Boards: Future Paradigms for Electronics Toolkits (Extended Abstract for Workshop)
Andrea Bianchi, Steve Hodges, David Cuartielles, Hyunjoo Oh, Mannu Lambrichts, Anne Roudaut
CHI EA '23   Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems

CircuitGlue: A Software Configurable Converter for Interconnecting Multiple Heterogeneous Electronic Components
Mannu Lambrichts, Raf Ramakers, Steve Hodges, James Devine, Lorraine Underwood, Joe Finney
IMWUT '23   Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. 7, 2, Article 63, 2023

A Survey and Taxonomy of Electronics Toolkits for Interactive and Ubiquitous Device Prototyping
Mannu Lambrichts, Raf Ramakers, Steve Hodges, Sven Coppers, James Devine
IMWUT '21   Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. 5, 2, Article 70, 2021

DIY Fabrication of High Performance Multi-Layered Flexible PCBs (Extended Abstract)
Mannu Lambrichts, Jose Maria Tijerina, Tom De Weyer, Raf Ramakers
TEI '20   In Proceedings of the Fourteenth International Conference on Tangible, Embedded, and Embodied Interaction, 2020

SoftMod: A Soft Modular Plug-and-Play Kit for Prototyping Electronic Systems
Mannu Lambrichts, Jose Maria Tijerina, Raf Ramakers
TEI '20   In Proceedings of the Fourteenth International Conference on Tangible, Embedded, and Embodied Interaction, 2020

AWARDS

Best Presentation Award for "A Survey and Taxonomy of Electronics Toolkits for Interactive and Ubiquitous Device Prototyping"	*2021*

TALKS & PRESENTATIONS

Aachen Maker Meetup	A Holistic View on Electronics Toolkits	*2022*
Sketching in Hardware	Using Electronic Toolkits: Learning and Combining their Properties	*2022*

INTERESTS & HOBBIES

Maker · **Tinkerer** · **Electronics Prototyping** · **Drone Pilot**