

# Björn Braun | CV

Zurich, Switzerland

✉ bjoern.braun@inf.ethz.ch | 🏠 bjbrown.github.io | 📄 bjoern-braun | 🎓 Björn Braun

## Education

### ETH Zurich

PhD in Computer Science

Zurich, CH

05/22 – 04/26

### ETH Zurich

M.Sc. in Robotics, Systems and Control

Zurich, CH

09/19 – 09/21

### The University of Sydney

Master exchange semester

Sydney, AUS

02/20 – 07/20

### ETH Zurich

B.Sc. in Mechanical Engineering

Zurich, CH

09/15 – 09/18

## Experience

### Doctoral Researcher

SIPLAB, ETH Zurich

Zurich, CH

05/22 – present

#### Focus: Camera-based and wearable physiological sensing for health applications and computer agents

- **Part I:** Recording multimodal datasets of synchronized physiological signals and camera recordings
- **Part II:** Developing signal processing and deep-learning approaches to remotely extract physiological signals such as heart rate and electrodermal activity from facial and hand videos (**Python, PyTorch**, TensorFlow)
- **Part III:** Enhancing healthcare approaches and intelligent computer agents using remotely extracted physiological signals, for example, to better understand user behavior and provide better personalized assistance

### Head Teaching Assistant

ETH Zurich

Zurich, CH

09/24 – present

- Leading a team of 10 PhDs/PostDocs responsible for a course with 180+ students (teaching, exam, mentoring)

### Engineering Intern

ABB Turbo Systems AG

Baden, CH

10/18 – 04/19

- Developed a thermo-mechanical fatigue simulation for turbochargers (MATLAB, Simulink, C) on an embedded device with limited memory and computational power (version control via TFS/Git)
- Tested and verified code using a hardware-in-the-loop test bed for later deployment

### Head of Programming

Focus - Project "Proboscis"

Zurich, CH

09/17 – 06/18

- Elephant trunk-like robot capable of maneuvering through tight spaces (<https://proboscis.ethz.ch>)
- Conducted the project from scratch in a team of nine using agile sprints with self-organized funding of 70 K CHF
- Supervised a team of three to develop the perception and electronics (version control via Git)
- Developed the control system for remote steering using inverse kinematics

### Business Development Management Intern

ProQC International Ltd.

Ningbo, CHN

09/14 – 02/15

- Conducted factory audits and implemented spreadsheets for automated ISO norm evaluations (Excel, VBA)

## Publications

**Björn Braun**, Daniel McDuff, Tadas Baltrusaitis, Paul Strelí, Max Moebus, and Christian Holz. "SympCam: Remote Optical Measurement of Sympathetic Arousal". (IEEE BHI'24).

**Björn Braun**, Daniel McDuff, and Christian Holz. "How Suboptimal is Training rPPG Models with Videos and Targets from Different Body Sites?". (CVPR'24, CVPM workshop).

Max Moebus, Lars Hauptmann, Nicolas Kopp, Berken Utku Demirel, **Björn Braun**, and Christian Holz. "Nightbeat: Heart Rate Estimation From a Wrist-Worn Accelerometer During Sleep". (IEEE BHI'24).

**Björn Braun**, Daniel McDuff, Tadas Baltrusaitis, and Christian Holz. "Video-based sympathetic arousal assessment via peripheral blood flow estimation". (BOE'23).

## Additional Information

### Languages

German [native], English [fluent], French [basic], Latin [Latinum]

### Programming

**Python**, C++, ROS, MATLAB, Simulink, VBA

### Libraries

**PyTorch**, TensorFlow, **NumPy**, pandas, scikit-learn, SciPy

### Interests

I enjoy going snowboarding, ski touring, surfing, and running