

# Mihai Bâce

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My research interest is in the general area of Human-Computer Interaction, with a focus on computational aspects and has influences from both Machine Learning and Computer Vision. In my work, I develop innovative technologies to better understand users and enhance their interaction capabilities. Concretely, my work so far has focused on 1) detecting gestures using off-the-shelf wearables and facilitating interaction among multiple people, 2) enhancing the interaction experience when using wearable eye trackers either by making calibration easier or through gaze gestures, and 3) understanding and modelling users' visual attention in everyday mobile device interactions.

## EDUCATION

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- **Research Assistant / PhD Candidate at ETH Zürich, Switzerland** Nov. 2014 – Present  
PhD Student in the Distributed Systems Group, Institute for Intelligent Interactive Systems
- **MSc in Computer Science** Sept. 2012 – Sept. 2014  
École Polytechnique Fédérale de Lausanne, EPFL, Switzerland
- **BSc in Computer Science** Sept. 2008 – Sept. 2012  
Technical University of Cluj-Napoca, Romania

## FURTHER EDUCATION AND TRAINING

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- ACM SIGCHI Summer School on Computational Interaction (Cambridge, UK 2018)
- UBI Summer School (UBISS) on Augmented Reality (Oulu, Finland 2017)
- UBI Summer School (UBISS) on Eye Tracking (Oulu, Finland 2016)
- Machine Learning Summer School (MLSS) (Kyoto, Japan 2015)

## WORK EXPERIENCE

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- **Research Intern at ABB Corporate Research, Switzerland** Feb. 2014 – Aug. 2014  
Indoor localization on smartphones. Proposed an algorithm which collects crowd-sourced Wi-Fi and sensor data for localization. Implemented a prototype application for Android.
- **Software Development Engineer Intern at Microsoft, Ireland** Aug. 2013 – Feb. 2014  
Part of the Office Marketplace Experience (OMEX) team. Designed and implemented new features for the Office Marketplace platform.
- **Research Assistant at the Technical University of Cluj-Napoca, Romania** Jul. 2010 – Aug. 2012  
Part of the Image Processing and Pattern Recognition group led by Prof. Sergiu Nedevschi. Developed a cooperative driving assistance system for smartphone and tablet devices. Proposed an Extended Digital Map that stores additional map data such as information about the painted arrows, road curvature, or dynamic information about accidents or road blocks .

## PUBLICATIONS

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- **M. Bâce, S. Staal, A. Bulling:** Quantification of Users' Visual Attention During Everyday Mobile Device Interactions (cond. accepted ACM CHI '20)
- **M. Bâce, S. Staal, A. Bulling:** Accurate and Robust Eye Contact Detection During Everyday Mobile Device Interactions (arXiv '19)
- **M. Bâce, S. Staal, A. Bulling:** How far are we from quantifying visual attention in mobile HCI? (arXiv '19)
- **M. Bâce, S. Staal, G. Sörös:** Wearable Eye Tracker Calibration at Your Fingertips (ETRA '18)

- **M. Bâce**: Augmenting Human Interaction Capabilities with Proximity, Natural Gestures, and Eye Gaze (MobileHCI '17 Doctoral Consortium)
- **M. Bâce**, P. Schlattner, V. Becker, G. Sörös: Facilitating Object Detection and Recognition through Eye Gaze (MobileHCI '17 Workshop)
- V. Becker, **M. Bâce**, G. Sörös: Wearable machine learning for recognizing and controlling smart devices (MobileHCI '17 Workshop)
- **M. Bâce**, S. Staal, G. Sörös, G. Corbellini: Collocated Multi-user Gestural Interactions with Unmodified Wearable Devices (Augmented Human Research '17)
- **M. Bâce**, G. Sörös, S. Staal, G. Corbellini: HandshakAR: Wearable Augmented Reality System for Effortless Information Sharing (Augmented Human '17)
- **M. Bâce**, T. Leppänen, A. Ramirez Gomez, D. Gil de Gomez: ubiGaze: Ubiquitous Augmented Reality Messaging Using Gaze Gestures (Siggraph Asia '16 MGIA)
- **M. Bâce**, Y. Pignolet: Lightweight Indoor Localization System (Wireless and Mobile Networking Conference '15)

## AWARDS

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- 2016: Distinguished Project Award, “ubiGaze: Ubiquitous Augmented Reality Messaging using Gaze Gestures“, UBISS, Oulu, Finland
- 2015: Best Paper Award, “Lightweight Indoor Localization System“, Wireless and Mobile Networking Conference, Munich, Germany
- 2013: 3rd place NASA Space Apps Challenge, Reach for the Stars category
- 2011-2012: Research Scholarship from the Technical University of Cluj-Napoca
- 2009-2012: Merit scholarship from the Technical University of Cluj-Napoca
- 2008: 1st prize American Computer Science League, Baltimore, Maryland, USA
- 2007: 1st prize American Computer Science League, Houston, Texas, USA

## TECHNICAL SKILLS

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Machine Learning (TensorFlow, scikit-learn), Computer Vision and Image Processing (OpenCV), Mobile and Wearable App Development (Android), Java, Python, C/C++

## LANGUAGE SKILLS

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English: Fluent (C1)

German: Fluent (B2-C1)

French: Advanced beginner (A2)

Romanian: Native language