Mihai Bâce

Postdoctoral Researcher, University of Stuttgart, Germany

Personal Information

Date of birth:	14th of June 1989
Place of birth:	Satu Mare, Romania
Nationality:	Romanian

Academic Positions

- **Postdoctoral Researcher at University of Stuttgart, Germany** Dec. 2020 – Present

  Perceptual User Interfaces Group led by Prof. Andreas Bulling

Education

- **Dr. sc. ETH Zürich in Computer Science** Nov. 2014 – Sep. 2020

  Advisor: Prof. Friedemann Mattern

  Thesis committee: Prof. Otmar Hilliges, Prof. Andreas Bulling

- **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

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

Work Experience

- **Research Assistant / PhD Candidate - ETH Zürich, Switzerland** Oct. 2014 – Oct. 2020

  Distributed Systems Group, Institute for Intelligent Interactive Systems led by Prof. Friedemann Mattern

- **Research Intern - 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 - 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 - 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

- F. Strohm, E. Sood, S. Mayer, P. Müller, **M. Bâce**, A. Bulling: Neural Photofit: Gaze-based Mental Image Reconstruction (ICCV '21)
- E. Sood, F. Kögel, P. Müller, D. Thomas, **M. Bâce**, A. Bulling: Multimodal Integration of Human-Like Attention in Visual Question Answering (arXiv '21)
- **M. Bâce**: Interacting with Cyber-Physical Systems - Advancements in Gesture Control and Eye-based Human-Computer Interaction (PhD Thesis, ETH Zürich '20)
- **M. Bâce***, V. Becker*, C. Wang*, A. Bulling: Combining Gaze Estimation and Optical Flow for Pursuits Interaction (ACM ETRA '20) * Equal contribution
- **M. Bâce**, S. Staal, A. Bulling: Quantification of Users' Visual Attention During Everyday Mobile Device Interactions (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? (IEEE Pervasive Computing '20)
- **M. Bâce**, S. Staal, G. Sörös: Wearable Eye Tracker Calibration at Your Fingertips (ACM ETRA '18)
- **M. Bâce**: Augmenting Human Interaction Capabilities with Proximity, Natural Gestures, and Eye Gaze (ACM 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 (WMNC '15)
- V. Popescu, **M. Bâce**, S. Nedevschi: Probabilistic Approach for Automated Reasoning for Lane Identification in Intelligent Vehicles (SYNAC '11)
- V. Popescu, **M. Bâce**, S. Nedevschi: Lane identification and ego-vehicle accurate global positioning in intersections (IEEE IV '11)

Awards

- 2020: Best Paper Award, "Combining Gaze Estimation and Optical Flow for Pursuits Interaction", ACM ETRA 2020
- 2016: Distinguished Project Award, "ubiGaze: Ubiquitous Augmented Reality Messaging using Gaze Gestures", UBISS, Oulu, Finland
- 2015: Best Paper Award, "Lightweight Indoor Localization System", WMNC 2015
- 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 (ACSL), Baltimore, Maryland, USA
- 2007: 1st prize American Computer Science League (ACSL), Houston, Texas, USA

Technical Skills

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

Language Skills

English: Fluent (C1)
German: Fluent (B2-C1)
French: Advanced beginner (A2)
Romanian: Native language