

"PhD candidate for deep federated anomaly detection in medical imaging with industry experience in automotive and medical domains. I am excited to contribute to the future of machine intelligence and looking forward to the next challenge."



## WORK EXPERIENCE

### PHD CANDIDATE - HELMHOLTZ AI

2020 - PRESENT - MUNICH, GERMANY

Dr. Shadi Albarqouni

- Deep federated anomaly detection in medical imaging

### RESEARCH ENGINEER CV/ML - BOSCH CORPORATE RESEARCH

2018 - 2020 (2 YEARS) - HILDESHEIM, GERMANY

Dr.-Ing. Niklas Beuter

- Solved challenging perception and behaviour prediction tasks in the field of scene understanding and interior monitoring

### RESEARCH INTERN - SIEMENS HEALTHINEERS

2017 - 2018 (1 YEAR | 7 MONTHS) - ERLANGEN, GERMANY

Dr.rer.nat. Olivier Pauly, Dr.-Ing. Florin C. Ghesu

- Improved accuracy and robustness of lung segmentation on chest X-Rays by reducing the number of failures by 50%
- Developed novel recurrent neural networks that share a memory module

### RESEARCH INTERN - COMPUTER VISION CENTER

2016 (6 MONTHS) - BARCELONA, SPAIN

Prof. Petia Radeva

- Developed a temporal deep learning model for ego-centric action recognition

### RESEARCH INTERN - FAU PATTERN RECOGNITION LAB

2015-2016 (1 YEAR) - ERLANGEN, GERMANY

Dr.-Ing. Thomas Köhler, Prof. Dr.-Ing. habil. Andreas Maier

- Increased state-of-the-art image super-resolution by 3.0 dB by implementing a novel, robust multi-frame super-resolution method

### RESEARCH ASSISTANT - FRAUNHOFER IIS

2013-2017 (2 YEARS | 10 MONTHS) - NUREMBERG, GERMANY

Dr.-Ing. Christopher Mutschler

- Implemented cheap and efficient camera-based indoor localisation
- Assured QoS in a complex event processing system (C++)

## EDUCATION

### TUM: TECHNICAL UNIVERSITY OF MUNICH

2020 - ( PHD. ) - MUNICH, GERMANY

- Deep federated anomaly detection in medical imaging

### FAU: UNIVERSITY ERLANGEN-NUREMBERG

2011 - 2018 ( B.Sc., M.Sc., COMPUTER SCIENCE ) - GRADE 1.6 - ERLANGEN, GERMANY

- Machine learning and medical image analysis

### UAB: UNIVERSITAT AUTONOMA DE BARCELONA

2016 ( EXCHANGE SEMESTER ) - BARCELONA, SPAIN

- Deep learning and computer vision

## PUBLICATIONS & PATENTS

- **Cosmin I. Bercea**, Benedikt Wiestler, Daniel Rueckert, Shadi Albarqouni: *FedDis: Disentangled Federated Learning for Unsupervised Brain Pathology Segmentation*, 2021
- **Cosmin I. Bercea**, Olivier Pauly, Andreas K. Maier, Florin C. Ghesu: *SHAMANN: Shared Memory Augmented Neural Networks*, IPMI, Honk Kong, 2019
- **Cosmin Bercea**, A. Maier, T. Köhler: *Confidence-aware Levenberg-Marquardt optimization for joint motion estimation and super-resolution*, ICIP, Pheonix, 2016
- **Cosmin I. Bercea**, Alexander Lengsfeld, Lucas Rego Drumond: *Memory Networks for Detecting Anomalies in Vehicle Occupant Behaviour*, 2019
- **Cosmin I. Bercea**, Alexander Lengsfeld, Lucas Rego Drumond: *Cooperative Recurrent Neural Networks*, 2019
- Alexander Lengsfeld, Philipp Lenz, Lucas Rego Drumond, **Cosmin I. Bercea**: *Pedestrian Behaviour Recognition for Improving the AEB functionality*, 2019
- **Cosmin I. Bercea**, Florin C. Ghesu, Olivier Pauly: *Memory Networks for Medical Image Analysis*, 2018
- Christopher Mutschler, Tobias Feigl, Christian Daxer, Stephan Otto, **Cosmin I. Bercea**: *A method of viewing direction in a virtual reality environment*, 2016

## COSMIN IONUT BERCEA

PhD Candidate  
Deep Federated Learning

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### Languages

**Romanian:** native  
**German:** native  
**English:** fluent

### Awards

Study Grant(2011-2018, e.v. Villigst)

### Skills

