Afternoon Tutorial 2: BEAT with hands-on: an online web-platform for reproducible research in computational science

Abstract

This tutorial will present the BEAT platform for online reproducible research, introducing concepts and providing an initial hands-on experience. The BEAT platform allows novice and advanced researchers to: (1) benchmark systems and components; (2) run comparative evaluations; (3) attest (certify) toolchains; (4) provide educational material for new-comers in pattern recognition and (5) optimize algorithms and systems. All these tasks can be accomplished without installing additional software on the users computer, running exclusively from the web browser. The BEAT platform naturally enforces important research aspects such as reproducibility and component re-use.

Presenters

Andre Anjos (http://andreanjos.org) received his Ph.D. degree in signal processing from the Federal University of Rio de Janeiro in 2006. He joined the ATLAS Experiment at European Centre for Particle Physics (CERN, Switzerland) from 2001 until 2010 where he worked in the development and deployment of the Trigger and Data Acquisition systems that are nowadays powering the discovery of the Higgs boson. During his time at CERN, Andr’s studied the application of neural networks and statistical methods for particle recognition at the trigger level and developed several software components still in use today. In 2010, Andr’s joined the Biometrics Group at the Idiap Research Institute where he works mostly with face biometrics. His current interests include reproducible research in biometrics, anti-spoofing and recognition using faces, pattern recognition, image processing and machine learning. Andre currently leads the design and implementation of the BEAT platform for evaluation and testing. He also serves as reviewer for several scientific journals in pattern recognition, image processing and biometrics.

Laurent El Shafey received his Ph.D. in Electrical Engineering in 2014 from Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland. He holds a Master in Computer Science from the TU Darmstadt, Germany and a Master in Electrical Engineering from Supelec, France. Laurent was a post-doctoral researcher in the Biometric Person Recognition Group at Idiap Research Institute, Switzerland, when he contributed to the development of the BEAT platform. He now works at Google. His research interest is in machine learning and biometrics with a focus on face and speaker recognition. He is the recipient of the EAB Biometrics Research Awards 2014.

Sebastien Marcel (http://www.idiap.ch/~marcel) received the Ph.D. degree in signal processing from Université de Rennes I in France (2000) at CNET, the research center of France Telecom (now Orange Labs). He is currently interested in pattern recognition and machine learning with a focus on biometrics. He is a senior researcher at the Idiap Research Institute (Switzerland), where he heads a research team and conducts research on face recognition, speaker recognition, vein recognition and spoofing attacks detection. In 2010, he was appointed Visiting Associate Professor at the University of Cagliari (IT) where he taught a series of lectures in face recognition. He is also lecturer at the Ecole Polytechnique F’ed’erale de Lausanne (EPFL) where he is teaching on “Fundamentals in Statistical Pattern Recognition”. He serves on the Program Committee of several scientific journals and international conferences in pattern recognition and computer vision. He is Associate Editor of IEEE Transaction on Information Forensics and Security (TIFS) since 2013. He is also co-Editor of the upcoming “Handbook of Biometric Anti-Spoofing” with Prof M. Nixon and Prof. S.Z. Li that will be published by Springer. Finally, he is Guest Editor of an IEEE TIFS Special Issue on “Biometric Spoofing and Countermeasures”. Sebastien Marcel is the principal investigator of international research
Finally he is also the Director of the Swiss Center for Biometrics Research and Testing (http://www.biometrics-center.ch).

Topics
1. Introduction, motivation, requirements and design of the BEAT platform
2. Exploring existing components at the BEAT platform
3. Registered user interaction; Adding new components to the BEAT platform (demonstration)
4. The future of the BEAT platform

References