Ádám Fodor

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Career Interests

I am a PhD candidate at Eötvös Loránd University (ELTE), Budapest, Hungary. I have gained expertise in Machine Learning, Deep Learning, Computer Vision, Affective and Personality Computing and Social Interaction Analysis. As a researcher at the Neural Information Processing Group (NIPG), I develop human-centered applications in personality research and healthcare. I teach advanced AI courses, sharing my expertise in deep learning with the next generation of technologists.

Research Experience

2018 - **Neural Information Processing Group (NIPG)**

Eötvös Loránd University (ELTE), Budapest

Contribution to research projects:

- Human-machine interaction R+D (in progress)
- Behavior and gaze analysis in collaboration with German Research Center for Artificial Intelligence (DFKI) (in progress)
- Automatic behavior analysis of children with Autism Spectrum Disorder (publication is submitted)
- Non-verbal communication analysis, blinking detection [1]
- Group affect and social interaction analysis [2]
- Sentiment and personality perception in collaboration with Barcelona University [3], [6]
- Video processing and object tracking (EFOP-3.6.3-VEKOP-2017-00002) [7], [8]
- Speech processing and de-identification using deep neural networks [4]

2014 – 2017 **Institute for Computer Science and Control (MTA SZTAKI)**

Hungarian Academy of Sciences, Budapest

Contribution to research projects:

- Feature selection methods and production trend forecasting using supervised learning (iKOMP - led by OPEL Szentgotthárd Kft.) [9]
- Design, implementation, and testing of AHFS [5]
- Implementation and testing of an information theory-based general ANN model configuration search

Teaching Experience

2019/20/1 – 2022/23/2

Eötvös Loránd University (ELTE), Budapest

MSc Courses:

- Mathematical basis of deep neural networks L.
- Applied Deep Learning Pr.
- State-of-the-Art Applications of Deep Neural Networks Pr.
- Advanced Deep Network Development L.+Pr.

Education

2018 -

PhD Student in Computer Science

Eötvös Loránd University (ELTE), Budapest

- Major: Information Systems.
- Thesis: Affective Behavior and Social Interaction Analysis.
  Supervisor: Dr. habil. András Lőrincz

2016 – 2018

MSc in Computer Science

Eötvös Loránd University (ELTE), Budapest

- Thesis: Speech de-identification with deep neural networks
- Qualification: excellent
- Honors: First-place award and Special Award from Morgan Stanley at the Scientific Student Conference

2012 – 2016

BSc in Computer Science

Eötvös Loránd University (ELTE), Budapest

- Thesis: Design and development of user interface for data mining algorithms in MATLAB software environment
- Qualification: excellent

Supervision

2023 **Personality Recognition Based on Visual and Movement Features on the Face**
MSc thesis and Conference of Scientific Students' Association (TDK), Second Prize
Author: Muhammad Luqman Hakim. Supervisor: Ádám Fodor.

Computer skills

Programming languages, scripting:	Python, MATLAB, C++, bash
Frameworks:	PyTorch, Tensorflow
Platforms:	Ubuntu Linux 24.04, Windows 11
Utilities:	Git, LaTeX, Draw.io

Languages

Hungarian:	Native
English:	Full Professional Proficiency
Spanish:	Basic

Publications

[1] **Ádám Fodor**, Kristian Fenech, András Lőrincz; *BlinkLinMulT: Transformer-Based Eye Blink Detection*, MDPI Journal of Imaging, vol. 9-10, 196, 2023.

[2] Kristian Fenech, **Ádám Fodor**, Sean P Bergeron, Rachid R Saboundji, Catharine Oertel, András Lőrincz; *Perceived personality state estimation in dyadic and small group interaction with deep learning methods*, arXiv preprint arXiv:2211.04979, 2022.

[3] **Ádám Fodor**, Rachid R Saboundji, Julio CS Jacques Junior, Sergio Escalera, David Gallardo-Pujol, András Lőrincz; *Multimodal Sentiment and Personality Perception Under Speech: A Comparison of Transformer-based Architectures*, Understanding Social Behavior in Dyadic and Small Group Interactions (PMLR), pp. 218-241, 2022.

[4] **Ádám Fodor**, László Kopácsi, Zoltán Á Milacski, András Lőrincz; *Speech de-identification with deep neural networks*, Acta Cybernetica, vol. 25-2, pp. 257-269, 2021.

[5] Zsolt János Viharos, Krisztián Balázs Kis, **Ádám Fodor**, Máté István Büki; *Adaptive, hybrid feature selection (AHFS)*, Pattern Recognition, vol. 116, 107932, 2021.

[6] **Ádám Fodor**, Rachid R. Saboundji, András Lőrincz; *Enhancing Apparent Personality Trait Analysis with Cross-Modal Embeddings*, 13th Joint Conference on Mathematics and Computer Science, pp. 1-14, 2020.

[7] László Kopácsi, Áron Fóthi, **Ádám Fodor**, Ellák Somfai, András Lőrincz; *Skeletonization Combined with Deep Neural Networks for Superpixel Temporal Propagation*, International Joint Conference on Neural Networks (IJCNN), pp. 1-7, 2019.

[8] László Kopácsi, Áron Fóthi, **Ádám Fodor**, Ellák Somfai, András Lőrincz; *Common Fate Based Episodic Segmentation by Combining Supervoxels with Deep Neural Networks*, International Joint Conference on Neural Networks (IJCNN), pp. 1-7, 2019.

[9] Zsolt János Viharos, Jenő Csanaki, János Nacsa, Márton Edelényi, Csaba Péntek, Krisztián Balázs Kis, **Ádám Fodor**, János Csempesz; *Production trend identification and forecast for shop-floor business intelligence*, Acta Imeko, vol 5-4, pp. 49-55, 2016.