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| Department of Artificial Intelligence  [**Faculty of Informatics**](https://www.inf.elte.hu/en/)  Eötvös Loránd University Budapest |

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| **Topic ID** | **Development and harmonisation of methodologies for assessing digital health technologies in Europe** |

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| **Lead Researcher/Contact** | András Lőrincz / [lorincz@inf.elte.hu](mailto:lorincz@inf.elte.hu) , [Neural Information Processing Group](http://nipg.inf.elte.hu/) |
| **Role in a potential consortia** | partner |

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| **Introduction about the Research Group** | The breakthrough in Artificial Intelligence has made it possible for the same algorithm (family) called Artificial General Intelligence to be efficient in different fields. The essence of the [Neural Information Processing Group](http://nipg.inf.elte.hu/#intro-page)’s approach is using the same algorithms for solving different applications and kneading all that has been learnt into one core. The researchers apply their results in human-machine collaboration, machine diagnosis and machine therapy (Rush Medical School, Chicago and HumanE-AI-Net EU Flagship Projects), in the diagnostics of skin disorders (EIT Digital Project, together with DFKI), the recognition and prediction of situations of autonomous vehicles (Bosch), and in the field of ethics and legal issues of machine learning (ETAMI project: German, French, Dutch, Hungarian, and Italian partners).  The research group is currently engaging with   * Intelligent assisant for physical rehabilitation * Machine help for autism diagnosis and therapy * Machine assistant in cognitiv behavioral therapy for Post Traumatic Stress Disorder (PTSD),   The research team is participating in the [HumanE-AI-Net](https://www.humane-ai.eu/) (EU ICT48 AI "Flagship" project) which brings together leading global artificial intelligence (AI) laboratories to collaborate with key players in areas, such as human-computer interaction, cognitive, social and complexity sciences. The community develops robust, trustworthy AI systems that can ‘understand’ humans, adapt to complex real-world environments and interact appropriately in complex social settings. |
| **Areas of contribution** | **In AI:**  Deep learning, Composite AI, deep reinforcement learning, information fusion using transformers  **In motion and behavior characterization:**  Body, head, and hand motion patterns, gaze direction and blinking estimation, object manipulation, emotion estimation, multimodal methods  **In software development:**  Industry level software development technologies, including test-driven developments and [apptainer](https://github.com/apptainer/apptainer) (or singularity/docker) container technologies fro high-performance computing environments.  **In human-machine verbal interactions:**  Whisper for *speech-to-text*, GPT-J or BLOOM models (replacing the Eleuther GPT-NeoX-20B model) for *chit-chat and other NLP* tasks  **In environmental modeling**:  3D semantic map, 3D instance map, 3D panoptic map for verbal interaction and path planning |
| **Other Potential partners** | German Research Center for Artificial Intelligence (DFKI) in **avatar modeling andin interactive deep learning** |