Research / PhD position: Development and Application of a Posture Detection Algorithm using Machine Learning

The Technische Universität München (TUM), Department of Informatics, Chair of Robotics, Artificial Intelligence and Embedded Systems (Prof. Knoll) is working in a project founded by the Federal Ministry of Education and Research (BMBF) and in collaboration with the digital health startup reFit Systems GmbH. The goal of this project is to develop an optimized posture tracking algorithm that can be integrated into a digitalized orthopedic rehabilitation system.

The chair is offering a **full time** research position (TVL13) with a duration of **three years** in which time the student can write his/her PhD thesis.

**Objective & Tasks**

1. Research on the current state of the art on posture estimation using RBG and deep learning (CNN and others).
2. Define architecture for deep-learning algorithm.
3. Iterative process of reference data collection, training, testing and optimization.
4. Integration of developed algorithm into rehabilitation exercises.
5. Evaluation of posture algorithm and collected data.

**Mandatory Requirements:**

- Master’s Degree in a technical course of study (informatics, electrical engineering, physics, mathematics or related fields)
- Good code development skills, knowledge in object oriented programming (C++, Python or similar)
- Possess skills/familiar with development tools (git)
- Fluent English language
- Very good communication skills
- Ability to work efficiently and independently.

**Nice to Have:**

- Experiences with machine learning methods and cloud computing.
- Experience in image processing

**What we offer:**

- An environment of trust and mutual support.
- Working in an interdisciplinary research team at the leading German University of Technology and with direct applications into industry.
- Direct contact with experts from the fields IT and medicine.
- Your work will contribute to the development of real life applications that help patients in need.

**Supervisor:** Prof. Dr.-Ing. Alois Knoll

**Advisor:**
Dr. Alejandro Mendoza
M. Sc. Valentin Koller

**Type:**
PhD

**Research area:** Machine Learning, Posture estimation, Movement Tracking, Rehabilitation

**Language:** English, German (optional)

**Date of submission:**
15. Oct. 2018

**For more information please contact us:**
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