

PhD Position

In vivo and in vitro visualization of complex functional relationships between anatomic structures in the spine

An appointment as an Early Stage Researcher (ESR) is available at Laboratory for Biomechanics and Biomaterials, Department of Orthopaedics, Hannover Medical School in Germany within the framework of the European Marie-Curie Research and Training Network entitled "MultiScaleHuman" (<http://multiscalehuman.miralab.ch/>).

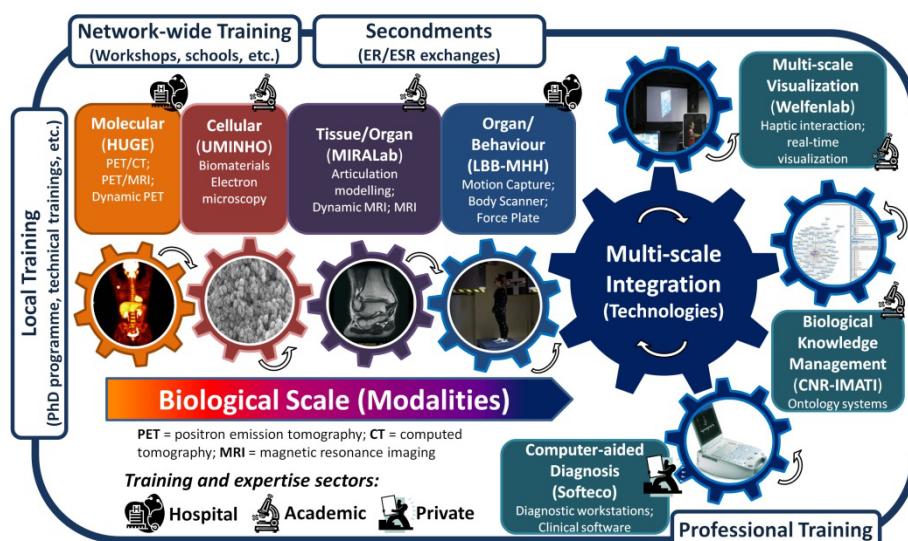
Supervisor and contact:
 PD Dr.-Ing. Christof Hurschler
 Director of Laboratory for Biomechanics and Biomaterials
 Department of Orthopaedics
 Hannover Medical School
 Anna-von-Borries-Str. 1-7
 D-30625 Hannover
 Germany
 Email: christof.hurschler@ddh-gruppe.de
 Web: www.lbb-mhh.de

General information on the MultiScaleHuman project

Aim of the Project

The goal of **Multiscale** Biological modalities for physiological human articulation (MultiScaleHuman) is to research by **training early stage** researchers (ESR) and **experienced** researchers (ER) in the creation of a multi-scale biological data visualization and knowledge management system for improved understanding, diagnosis and treatment of physiological human articulations.

MultiScaleHuman will exploit advances in multiscale biological modalities and their integration by addressing five core biological scales: **Molecular**, **Cellular**, **Tissue**, **Organ** and **Behaviour** scales.



This will be achieved through initiating a network of ESR/ER with training provided from a three-sector-research consortium which involves **academic** (education), **hospital** (social actors) and **private** (industry)

sectors. MultiScaleHuman will provide a **unique training program**, from technical to complementary skills learning by fully exploiting the training opportunities that Marie Curie ITN provide and by building a consortium of partners that brings **multi-disciplinary skills** in the understanding and treatment of physiological articulations in MSD and related disorders.

Partners

- MIRALab (coordinator), Université de Genève, Geneva, Switzerland
- HUGE, Les Hôpitaux Universitaires de Genève, Geneva, Switzerland
- UMINHO, Universidade do Minho, Braga, Portugal
- LBB-MHH, Medizinische Hochschule Hannover, Hannover, Germany
- CNR-IMATI, Consiglio Nazionale Delle Ricerche, Genoa, Italy
- Softeco Sismat Srl, Genoa, Italy
- Welfenlab, Gottfried Wilhelm Leibniz Universität Hannover, Hannover, Germany

A Marie Curie Research Training Network

MultiscaleHuman is a [Marie Curie Research Training Network](#) project within EU's [Seventh Framework Programme]. These Networks provide the means for research teams of recognised international stature to link up, in the context of a well-defined collaborative research project, in order to formulate and implement a structured training programme for researchers in a particular field of research.

Criteria of selection

For Marie Curie programme criteria and regulations, please consult the web site:

<http://ec.europa.eu/research/mariecurieactions/> and especially the brochure called "The European Charter for Researchers & the Code of Conduct for their Recruitment":

<http://ec.europa.eu/euraxess/index.cfm/rights/brochure>

PhD position details

Description of the work

The research hypothesis is that by describing important functional relationships more accurately, better treatment modalities can be designed. Advanced in vitro simulation techniques for the measurement of joint kinematics (emphasis on spine, but also applicable to other joints) using bone pins/markers and optical or ultrasonic motion analysis devices will be hence applied. This PhD topic will develop advanced techniques for registering motion-analysis data to precise 3D geometric representations of anatomical structures.

The thesis will include training periods at some sites of the European partners of this network.

Requirements

Applicants will ideally have a background in either biomechanical research, computer science or any other relevant discipline. Strong programming (MatLab), gait analysis and multi body simulation (VICON, AnyBody, OpenSIM) skills are essential for the project. Previous knowledge of image processing and motion analysis techniques is an asset. English language written and spoken skills are required.

Criteria on nationality, age and qualification apply. The candidate must preferably be citizen of the European Union.

Researchers may not have resided or carried out their main activity (work, studies, etc.) in the country of their host organization (in this case Germany) for more than 12 months in the 3 years immediately prior to the reference date. Short stays, such as holidays, are not taken into account.

The criteria and provisions of the European Marie Curie Research and Training Network, drafted by EC, will be applied (please consult <http://ec.europa.eu/research/mariecurieactions/>)

We strongly encourage the application of women candidates.

Contract details

Start Date: March 01, 2012

Duration: 36 months

Salary calculated according to the European Community regulations for Marie Curie Research and Training Network

Application

Applications should be sent to the following e-mail address:

christof.hurschler@ddh-gruppe.de (Contact person: PD Dr.-Ing. Christoph Hurschler)

Please make sure to mark in the "Subject" field of your email in capital letters "ER APPLICATION".

For application please supply:

- A detailed Curriculum Vitae
- A list of publications
- A letter of motivation.

Please add the scan of an identity document.

Deadline: January 15, 2012