

The Berlin School of Movement Science (BSMS), graduate school of the Humboldt-Universität zu Berlin, is offering a

PhD position with focus on the development of personalised computational models to predict the probability of treatment success in chronic low back pain patients

for a period of 3 years hosted at the Julius Wolff Institute, Charité-Universitätsmedizin Berlin.

Project description

The aim of this research project is to develop and validate personalised musculoskeletal models (inverse-dynamic models), which can predict the consequences of prospective innovative personalised rehabilitation and training interventions in patients suffering from chronic low back pain. These models should allow therapists to calculate the probability of treatment success based on patient, disease or treatment characteristics. Such models are currently not existing in the rehabilitation but compellingly necessary to predict the success of rehabilitation and training interventions. The successful candidate will measure anthropometric data and kinematics as well as muscle activity profiles of symptomatic and asymptomatic subjects under different tasks. Subsequently, these data should be implemented into inverse-dynamic models in order to individually predict muscle and joint reaction forces.

We are looking for a PhD candidate interested into this topic.

Qualifications

- Candidates should hold an MSc in engineering or a similar degree with an academic level equivalent to the MSc in engineering (Clinical Biomechanics, Biomedical Engineering).
- Experience in programming, advanced mathematics, and a solid background in computational analysis are needed.
- Excellent interpersonal skills and the ability to interact effectively with members of the research teams are essential to the success of the individual in this position. The

successful candidate must be able to learn and work independently, yet collaborate effectively with co-workers.

- Strong experience in the use of a high-level programming language such as MATLAB, C or C++.
- Ability and willingness to mentor junior students.
- Excellent command of English (written and spoken) as well as technical writing.
- Exceptionally strong communication and interpersonal skills.
- Excellent data presentation and visualization skills.
- Ability to effectively present complex results in a clear and concise manner that is accessible to a diverse audience.
- Understanding of biological principles is a plus.
- Enthusiasm for learning more

Eligibility

- With the beginning of the scholarship the Master studies must be completed.
- The latest degree may not date back longer than 6 years.
- At the time of the nomination the candidate may not be in Germany for more than 15 months.
- During the scholarship period, staying abroad is limited to 9 months in total and no longer than 3 months per year.

The position is funded with a DAAD scholarship (Graduate School Scholarship Programme) and it includes:

- Monthly scholarship of 1000.00 €
- Health, accident and liability insurance.
- Funding of a German language course (2, 4 or 6 months).

Application procedure

The application can only be submitted electronically. It should be written in English and must contain the following:

- Letter of motivation
- Detailed curriculum vitae
- Letter of recommendation by two university professors from the home university, issued during the last 2 years
- Copies of certificates or copies of translated documents:
 - o Copy of the school leaving certificate qualifying for admission to higher education in your own country

- Copies of certificates of annual examinations taken at the home university (transcripts of records)
- Copies of certificates of any academic degrees or advanced qualifications showing grades and explain the home's grading system
- Language certificate
- Certificates of internships (when available)
- The master thesis (or equivalent) and any publications or manuscripts

Contact information for this position

We invite you to apply before the **31st October 2016**. Applications must be submitted as one pdf file containing all materials to be given consideration. Please send your application document via email to: w.hampel (at) hu-berlin.de.

The Julius Wolff Institute is within the university structure of the Charité - Universitätsmedizin Berlin. As a research institute we run applications and basic research in the fields of orthopedics and trauma surgery. Our main research field is the regeneration and biomechanics of the musculoskeletal system as well as the improvement of joint replacement. The successful candidate will work under the supervision of Prof. Dr. Hendrik Schmidt (jwi.charite.de/en/research/spine_biomechanics).

**Gutachten zu Stipendienanträgen von ausländischen Studierenden,
Graduierten, Doktoranden und Promovierten****Reports on scholarship applications
submitted by foreign students, graduates, doctoral students and postdocs****Allgemeine Hinweise**

Das Auswahlverfahren für die Vergabe von DAAD-Stipendien basiert auf dem Prinzip der akademischen Selbstverwaltung. Die Förderentscheidungen im Rahmen der DAAD-Programme werden in der Regel von unabhängigen akademischen Auswahlkommissionen getroffen. Sie nehmen in der Arbeit des DAAD einen zentralen Platz ein. Der DAAD dankt allen, die der Bitte von DAAD-Stipendienbewerbern um ein Gutachten für ihren Antrag entsprechen. Die Gutachten bilden zusammen mit den Leistungsnachweisen und der Beschreibung des Studien- bzw. Forschungsvorhabens durch den Bewerber eine wichtige Entscheidungsgrundlage für die Empfehlung der Auswahlkommission zur Vergabe eines Stipendiums.

General Information

The selection process for awarding DAAD scholarships is based on the principle of academic self-government. Funding decisions for DAAD programmes are generally made by independent academic Selection Committees. These play a central role in the work of the DAAD. The DAAD would like to thank everybody who meets an applicant's request for a report to accompany their DAAD scholarship application. These reports, along with certificates documenting the applicant's academic achievements and the applicant's description of the study or research project, form an important decision-making basis for the Selection Committee's scholarship award recommendation.

Gutachten für / Report for:

(Name der Bewerberin/des Bewerbers / Applicant's name)

Name des Gutachters/der Gutachterin:

Referee's name

Stellung / Position:**Fach / Subject:****Hochschule / University:****Anschrift / Address:**

- 1. Woher und wie lange kennen Sie die Bewerberin / den Bewerber?** Since when and in what capacity have you known the applicant?
- 2. Die Bewerberin/der Bewerber zählt(e) zu den besten Studierenden/Doktoranden (in %):**
The applicant is/was among the best students/doctoral students (in %):
 5% 10% 20% 30% keine Aussage möglich / no assessment possible
- 3. Wodurch zeichnet sich die Bewerberin/der Bewerber fachlich und persönlich aus und wie beurteilen Sie ihr/sein Potential?** How does the applicant stand out in academic and personal terms and how would you assess his/her potential?

4. Wie beurteilen Sie die Vorbereitung, Durchführbarkeit, Relevanz und den Zeitplan des Vorhabens?

How would you assess the preparation, feasibility, relevance and schedule of the project in question?

5. Welche Bedeutung hat das beantragte Stipendium für den wissenschaftlichen und beruflichen Werdegang der Bewerberin/des Bewerbers und/oder ihre/seine Heimatinstitution? Of what significance is the aspired scholarship to the applicant's academic and professional career and/or to his/her home institution?

6. Zusätzliche Informationen, die für die Entscheidung über das Stipendium von Bedeutung sein könnten / Additional information that could be of importance to the scholarship award decision:

7. Befürwortung / Degree of approval

Befürwortung mit Nachdruck
Emphatic approval

Befürwortung
Approval

Befürwortung mit Einschränkung
Conditional approval

Ort, Datum
Place, Date

Unterschrift des Gutachters/der Gutachterin, Stempel
Referee's Signature, Stamp or Seal