



- 1) **TUTKIMUS, AINEISTOT JA AVOIMUUDEN RAJAT**
- 2) **PhD studentship in the Department of Engineering at the University of Hull**
- 3) **PhD studentship in the Department of Sport, Health and Exercise Science at the University of Hull**
- 4) **Post doctoral researcher in hip biomechanics**

## 1) TUTKIMUS, AINEISTOT JA AVOIMUUDEN RAJAT

Tervetuloa seminaariin

### TUTKIMUS, AINEISTOT JA AVOIMUUDEN RAJAT

Maanantai 21.4.2008 klo 12.00 - 16.00, Tieteiden talo, sali 104, Helsinki

#### Seminaarin tavoitteet:

Tutkimuksen tietovarantojen tehokas käyttö tutkimuksen ensivaiheessa ja kerätyn aineiston jatkokäyttö sekä olemassa olevat laadukkaat tutkimusaineistot antavat suomalaiselle tutkimukselle kilpailuedun. Tieteellisen tiedon avoimen käytön periaate edistää tiedon saatavuutta ja käyttöä. Tutkimusaineistojen kohdalla avoimuudellakin on rajansa. Tutkimusta ei voida toteuttaa ilman että samalla huolehditaan hyvästä tieteellisestä käytännöstä, tutkimusetiikan periaatteista ja pelisäännöistä. Seminaarin tavoitteena on pohjustaa kansallista keskustelua tutkimusaineistojen jatkokäytön tehostamisesta sekä edistää tutkimusaineistojen hyvän tieteellisen käytännön mukaista hyödyntämistä.

Seminaariohjelma verkossa (<http://www.tjnk.fi/aineistojenrajat>) tai viestin lopussa.

#### Ilmoittautuminen:

Tilaisuus on avoin, mutta edellyttää ilmoittautumista 16.4.2008 mennessä osoitteeseen [terhi.tarkiainen\(AT\)tsv.fi](mailto:terhi.tarkiainen(AT)tsv.fi)

#### Järjestäjät:

Tiedonjulkistamisen neuvottelukunta, Tutkimuseettinen neuvottelukunta, STAKESin tutkimuseettinen toimikunta

#### Lisätietoja:

Tiedonjulkistamisen neuvottelukunnan pääsihteeri Reetta Kettunen, p. (09) 228 69236 tai Tutkimuseettisen neuvottelukunnan pääsihteeri Salla Lötjönen, p. (09) 228 69234.

#### Lisätietoja Internetistä:

<http://www.tjnk.fi/aineistojenrajat>

## 2) PhD studentship in the Department of Engineering at the University of Hull

We are pleased to announce a vacancy for a fully funded PhD studentship in the Department of Engineering at the University of Hull as part of the University's '80th Anniversary' PhD Scholarships.

Highly motivated students interested in pursuing a PhD in Medical Engineering at the University of Hull are invited to apply. The successful applicant will participate in a research project in the Musculoskeletal Biomechanics Group, a collaboration between the Department of Sport, Health and Exercise Science and the Medical Engineering Research Group, working with Dr Catherine Dobson and Dr Michael Fagan in the area of musculoskeletal modelling.



It has been widely accepted for many years that bone adapts to the loading it experiences although the mechanical stimulus for that adaptation is not fully understood. In addition, as the skeleton grows and develops, genetic stimuli guide the general shape and configuration of the bones. The aim of the project is to separate out these two mechanisms by studying the human femur as it develops from its pre-natal form to the mature adult shape. In particular, the development and change of the internal trabecular architecture will be examined in relation to the changing loads that the bone experiences (i.e. during sitting, crawling and walking etc). Using micro-CT datasets and the latest modelling techniques, musculoskeletal modelling software and finite element analysis will be used to predict the stress and strains in the femurs. EMG and motion data will also be used to provide the muscle activity and motion of the models. It is hoped that the results will not only add to our general understanding of how bone works, but also contribute to our understanding and possible management of congenital musculoskeletal diseases, and be important to diseases experienced in later life, such as osteoporosis.

This project will complement current work being undertaken in the Group looking at the development of the pelvis, from pre-natal to adolescence. The post is available at the UK/EU rate with annual fees of £3,300 and a stipend of £12,940 in 2008/9. Annual increases to be announced as per Research Council recommended minimums.

Applicants should have at least a 2.1 honours degree (or predicted) in an appropriate Engineering or other related discipline. Previous research experience with AMIRA, ANSYS finite element software and ADAMS multibody dynamics software would be desirable assets, but not essential.

Supervisor

For an informal discussion, please contact

Dr Catherine Dobson [<mailto:c.a.dobson@hull.ac.uk>](mailto:c.a.dobson@hull.ac.uk)

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<http://www.hull.ac.uk/mbe/> [<http://www.hull.ac.uk/mbe/>](http://www.hull.ac.uk/mbe/)

Application Form

Please download the application and reference forms at

<http://www.hull.ac.uk/postgraduate/80thanniversaryphd/science/musculoskeletal.html>

[<http://www.hull.ac.uk/postgraduate/80thanniversaryphd/science/musculoskeletal.html>](http://www.hull.ac.uk/postgraduate/80thanniversaryphd/science/musculoskeletal.html)

and return them completed to...

Admissions Office

The University of Hull

Hull HU6 7RX

The closing date for applications is 16th May 2008.

Interviews are anticipated to take place 9th to 20th June. Starting date soon thereafter.

### **3) PhD studentship in the Department of Sport, Health and Exercise Science at the University of Hull**

We are pleased to announce a vacancy for a fully funded PhD studentship in the Department of Sport, Health and Exercise Science at the University of Hull as part of the University's '80th Anniversary' PhD Scholarships.



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The post is available at the UK/EU rate with annual fees of £3,300 and a stipend of £12,940 in 2008/9. Annual increases to be announced as per Research Council recommended minimums.

Highly motivated students interested in pursuing a PhD in the Department of Sport, Health & Exercise Science at the University of Hull are invited to apply. The successful applicant will enrol on an MPhil/PhD degree and will be working with Natalie Vanicek in the area of clinical biomechanics. The proposed project will add to our ongoing research investigating human motion of individuals with altered lower limb mechanics as a result of disease or trauma.

The appointed student will participate in a research project in the Musculoskeletal Biomechanics Group, a new collaboration between the Department of Sport, Health and Exercise Science and the Medical Engineering Research Group, and funded by the University as part of the '80th Anniversary' Scholarship programme. The clinical biomechanics project will investigate the neuromechanical changes of gait and posture in older individuals by using motion analysis and electromyography to monitor muscle activity patterns, with input from muscle modelling software to predict the actual muscle forces.

Applicants should have at least a 2.1 honours degree (or predicted) in an appropriate Sport Science, Engineering or other related discipline with specific experience of biomechanics or gait analysis. Previous research experience with a three-dimensional motion capture system and/or surface EMG analysis would be desirable assets.

The Human Performance Laboratory in the Department of Sport, Health and Exercise Science is equipped with a 20-camera, high speed motion analysis system and synchronised with four force platforms and an 8-channel telemetric EMG system. The laboratory also has isokinetic dynamometry, motorised and non-motorised treadmills, equipment for dynamic posturography and an in-shoe based pressure measurement system.

#### Supervisor

For an informal discussion, please contact  
Natalie Vanicek <mailto:N.Vanicek@hull.ac.uk>, Lecturer in Biomechanics  
Department of Sport, Health & Exercise Science  
University of Hull  
T +44 (0)1482 466212

#### Application Form

Please download the application and reference forms at  
<http://www.hull.ac.uk/postgraduate/80thanniversaryphd/science/musculoskeletal2.html>  
<<https://exfs.adir.hull.ac.uk/exchweb/bin/redirect.asp?URL=http://www.hull.ac.uk/postgraduate/80thanniversaryphd/science/musculoskeletal2.html>>  
and return them completed to...

Admissions Office  
The University of Hull  
Hull HU6 7RX

The closing date for applications is 16th May 2008.

Interviews are anticipated to take place 9th to 20th June. Starting date soon thereafter.

#### 4) Post doctoral researcher in hip biomechanics

Position: Post doctoral researcher in hip biomechanics  
Location: Biomechanics Research Laboratory, Steadman Hawkins Research Foundation, Vail, Colorado, USA



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#### Biomechanics Research Laboratory:

The research focus of the laboratory is the human upper and lower extremities with an emphasis on understanding the musculoskeletal biomechanics underlying healthy, acute injury, chronic diseases and the post-operative rehabilitation of upper and lower extremity surgeries. The laboratory follows a framework that consists of precise laboratory measurements combined with subject specific musculoskeletal and FE modeling. The equipment in the laboratory includes an 8-camera Motion analysis motion capture system, three Bertec force plates, Delsys 8-channel hardwire and 12 channel telemetry EMG system, and a dual plane dynamic fluoroscopy system capable of measurement of in vivo bone motions with sub-millimeter accuracies at frames rates up to 500 fps.

#### Responsibilities:

The goal of this position is to develop and apply musculoskeletal FE models of the hip. Responsibilities include design of human motion analysis studies, programming of data acquisition and post-processing software in Matlab, recruiting of appropriate subjects, executing experiments, data analysis, assisting in and supervising laboratory interns in data collection and processing, integrating the motion data into 3D musculoskeletal models, FE modeling using Abaqus, and technical writing and presentation of this data in scientific forums. The position involves close interaction with current staff, engineering students, medical interns, Orthopedic Fellows, physical therapists and orthopedics surgeons.

#### Qualifications:

A minimum PhD degree in engineering or a science related field is required. A background in bioengineering, mechanical, or electrical engineering with emphasis in both human experimental studies and musculoskeletal modeling is desired. Proficiency with Matlab and Abaqus is desired. Applicants with research experience will be given strong preference. This position is available immediately and is funded for 2 years.

Further information about our laboratory can be found at:

<http://www.shsmf.org/> <<http://www.mae.cornell.edu/valero>>

In addition, our laboratory has close ties with the interdisciplinary programs described at <http://www.steadman-hawkins.com/>

#### Application process:

Applicants should apply electronically by submitting a PDF file including a statement of professional interests, a full CV, and names, addresses and phone numbers of three professional references to: Michael R Torry, PhD, Director, Biomechanics Research Laboratory [Mike.Torry@shsmf.org](mailto:Mike.Torry@shsmf.org)