



PhD Vacancy

Computational Modeling / Vascular Biomechanics

Biomedical Engineering Dept. / Erasmus Medical Center (the Netherlands)

(Post date: 23/10/2023)

The Cardiovascular Biomechanics Laboratory of the Biomedical Engineering Department at Erasmus Medical Center (Rotterdam, the Netherlands) has a fully-funded PhD position in the field of Vascular Biomechanics, on computational modeling of atherosclerotic arterial disease.

Project description

The rupture of diseased segments (atherosclerotic plaques) in arteries is a major cause of fatal and disabling cardiovascular events. Plaque rupture is a mechanical event where the collagenous plaque tissue loses its structural integrity. The architecture of the fibrillar collagen network in a plaque is hypothesized to be the key determinant of the rupture risk of the plaque. Hence, computational models that have the tissue's collagen architecture implemented have the potential to predict the rupture risk of plaques and hence, help patients' well-being. To be the front-runner in the field of atherosclerotic plaque biomechanics, the recruited PhD candidate will perform computational modeling of atherosclerotic arteries for the assessment of local mechanical and failure properties.

Candidate profile

We are looking for a highly motivated candidate to conduct multidisciplinary doctoral research on the computational modeling of atherosclerotic arteries for rupture risk assessment. The potential candidates are expected to:

- Have a strong interest and/or experience in (cardiovascular) tissue biomechanics, computational modeling (FEA/FSI/XFEM), and continuum mechanics,
- Hold or are about to obtain an MSc degree from a technical program such as engineering, biomedical sciences, applied physics, or similar,
- Be creative, a team player, and eager to take initiative,
- Have good communication skills, and be fluent in both written and spoken English.

Cardiovascular Biomechanics Group at Erasmus Medical Center

Cardiovascular Biomechanics Group at Erasmus MC consists of engineers, biologists and clinicians, strongly driven by the scientific motivation of performing innovative, cutting-edge cardiovascular research. The Lab combines fundamental, translational, experimental, computational, and clinical studies in the cardiovascular field, and closely collaborates with the other research groups at the Biomedical Engineering Department, the clinical departments of Erasmus MC, and the Biomechanical Engineering Dept. of Delft University of Technology.

Conditions of employment

We offer a 4-year full-time (36 hours/week) position in an inspiring multidisciplinary and international environment. The gross monthly salary will be based on your level of relevant experience, in accordance with the Collective Labor Agreement for Dutch University Medical Centers (CAO UMC). Additionally, Erasmus Medical Center provides excellent facilities for professional and personal development, a holiday allowance and an end-of-year bonus, and a number of additional benefits.

More information

For further information about the project and the position, you can contact Dr. Ali Akyildiz (a.akyildiz@erasmusmc.nl / a.c.akyildiz@tudelft.nl / www.aliakyildiz.net).

How to apply

Interested candidates should send 1.) their up-to-date CV with a list of (academic and/or industry) references that we can contact, 2.) a cover letter that details your motivation and fit to the job requirements (max 2 pages), and 3.) a list of grades of the qualifying degrees (BSc, MSc) to Dr. Ali Akyildiz (a.akyildiz@erasmusmc.nl / a.c.akyildiz@tudelft.nl). Screening of applications will start as soon as applications are received and will continue until the position is filled.