Project description

This project has four modules. A first module will aim to study and implement in C++ the model we have already developed in Matlab. A second module will aim to improve our implicit reconstruction algorithm of the vascular surface from patient data. The third module will develop a collision and friction management method. It will exploit the properties of implicit surfaces to integrate them continuously along the curve, in order to formulate mechanical stresses both efficiently and mathematically accurately. Finally, a fourth module will cover the tasks of evaluation and validation of the model developed. The recruited person will be involved in the first two modules and responsible for the latter two.

References

Principales activités
The recruited person will pursue research activities on computer models of 1D mechanical structures. A particular focus will be put on contact management: exact force computation and application, response (e.g. deformation) of contact surface, self-contact. The proposed solutions will rely on the basis of Solid Mechanics but will harvest the field of Computer Graphics to efficiently leverage implicit surfaces. A second focus will be placed on validation, and the evaluation of the physical accuracy of the proposed simulation framework. In that context, we’ve been collaborating for many years with physicians at the local University Hospital.

Compétences
Technical skills and level required: PhD in computer science or applied mathematics; solid knowledge in computer graphics; good to excellent level in C++ programming; knowledge in solid mechanics as well as skills in computer vision and experience in designing and carrying out experimentations will be appreciated.

Languages: French or English

Relational skills: readiness to work in a team, in a multicultural environment; ease in communicating research work; eagerness to convey new research ideas

Avantages sociaux
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- French courses

Rémunération
Salary: 2653€ gross/month

Applications are to be sent as soon as possible.

Conditions pour postuler

Attention: Les candidatures doivent être déposées en ligne sur le site Inria. Le traitement des candidatures adressées par d'autres canaux n'est pas garanti.