3 Open Positions for 3 Master Trainees in Medical Image Analysis and Simulation

Presentation of Inria and Asclepios Team

Inria is the French Institute for Research In Computer Science and Applied Mathematics. It has a workforce of 4000 people working in eight research centers in France. The positions are proposed in the Asclepios research team of the INRIA Sophia Antipolis– Méditerranée Research Center, located on the French Riviera. This center counts 500 people and about 30 research teams.

The Asclepios research team addresses a wide range of research topics in Medical Image Analysis and Simulation. The team counts about 30 people, including six permanent researchers.

Background

The Asclepios team has been awarded a prestigious 5-year grant MedYMA from the European Research Council (ERC Advanced Grant) http://erc.europa.eu/advanced-grants.
The MedYMA grant will support significant research efforts for a better analysis of time series of medical images with three main clinical applications: cardiac diseases, brain tumors and Alzheimer's disease.

Research Topics

The 3 research topics are the following

1. Electro-mechanical simulation of the cardiac ventricles by improving the structure of the cardiac fibers from 3D cardiac images. Integration in a finite element mesh.
2. Enhancement of a pathophysiological model of brain tumor growth to take into account anatomical and metabolic information coming from MR images. Application to the simulation of tumor growth for better planning of therapeutic intervention.
3. Development of a model of local brain atrophy based on the temporal analysis of 3D brain images. Application to the simulation of brain images of patients with Alzheimer's disease.

These topics will fit the research requirements for three Master's degrees, funding a research activity in the Asclepios Laboratory for a period of 6 months. A continuation as a PhD student is possible for each of the three topics.

Requirements

- Last Year of Master in computer science or applied mathematics
- Good knowledge of 3D Image processing (segmentation, registration, visualization)
- Good knowledge of Numerical Analysis (PDEs, Finite Elements, etc.)
- Fluent in English (Reading, Writing, Speaking)

Required Computer Skills

- C++ (VTK/ITK/QT)
- Matlab
- Windows, Linux Or Mac platform

Practical Information

The Master traineeship will last 6 months (typically between March and September 2012) with a gross remuneration of 1365 Euros/month (net is about 1126 Euros).
This traineeship may be continued through a PhD thesis.

Contact Information

Please send a curriculum vitae, referees coordinates and a motivation letter to the following email addresses (please include ERC-Master-Training in the subject field of your e-mail):

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