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Post-doc (or experienced engineer) position at INRIA Rennes

TITLE: *Semantic annotation of ressources in the context of multimodal medical image simulation*

Supervisor: Bernard Gibaud, VISAGES (EPI INRIA VisAGeS-Inserm U746), IRISA (02 23 23 45 90, bernard.gibaud@irisa.fr)

Location: Unit/Project VisAGeS, Inserm U 746, Faculty of Medicine / IRISA, 35043 Rennes Cedex, France (http://www.irisa.fr/visages)

Start Date: from September 2010

Application: please apply as soon as possible, by sending a motivation letter with a statement of interest, a CV, and at least 1 recommendation letter)

Deadline for application: 22 June 2010

Duration: 12 months, with a possible extension of 12 months

Salary: from 2050€ € /month **and up,** depending on the applicant's skills and experience

Mission: VISAGES (EPI INRIA VisAGeS-U746 Inserm) participates to the Virtual Imaging Platform (VIP) Project, a project supported by ANR, the French Agency for Research (COSINUS program). The Virtual Imaging Platform proposes to develop an environment enabling multi-modality, multi-organ and dynamic (4D) medical image simulation. It will integrate four proven simulation software of the four main imaging modalities (SIMRI for MRI, FIELD-II for US, SORTEO for PET and SINDBAD for X-Ray/CT), and it will cope with interoperability challenges among simulators, address compatibility issues between organ models and provide transparent access to computing and storage resources.
To tackle interoperability issues, the semantics of models and simulation tools will be made explicit; this semantics sharing will be achieved using annotations referring to a set of consistent ontologies describing the organ models, the simulation data processing, the simulation tools and the simulated images. Associated repositories and software interfaces will allow easy experiment design and assisted simulator and model integration.

Work to be done

The person to be enrolled will participate in the development of the ontologies to be used for the annotation of resources (ontology of biological object models, ontology of simulators and simulation tasks, ontology of simulated data). The general methodology will be based on the OntoSpec method [1]. The project will reuse achievements obtained during the Neurolog Project [2].

The work will be organized as follows:
1. Participation in the definition of the Domain of discourse to be modelled
2. Conception of the ontologies
3. Interaction with the team in charge of software development tasks
4. Assessment and feedback from implementation (iterative approach)

Scientific and technical Competences

Required: XML, RDF(S), OWL, ontologies, Protégé, Java, Tomcat, web services, SQL
Appreciated but not required: image processing, medical imaging
Foreign languages: english

Key words: semantic annotation, ontologies, medical imaging, simulation

References:
[1] Kassel G. Integration of the dolce top-level ontology into the ontospec methodology. *CoRR*, abs/cs/0510050, 2005.
[2] Temal L, Dojat M, Kassel G, Gibaud B. Towards an Ontology for Sharing Medical Images and Regions of Interest in Neuroimaging. Journal of Biomedical Informatics, 41: 766-778, 2008.