SOFTWARE ENGINEER

Title	Software engineer for Brain-Computer Interfaces and Open-source Software OpenViBE Keywords : Brain-Computer Interfaces, C++, OpenViBE, open-source software, virtual reality
Location	Centre de Recherche **INRIA Nancy Grand-Est** 615 rue du Jardin Botanique 54600 VILLERS LES NANCY
INRIA Research Team	CORTEX team
Duration	12 or 24 months
Starting	September-December 2009
Salary	2 475,32 euros / months (before taxes)
Diploma	Master Thesis, or Engineer Degree
Environment and context	INRIA, the French national institute for research in computer science and control, is dedicated to fundamental and applied research in information and communication science and technology (ICST). INRIA has a workforce of 3 800 working in 150 research project-teams. The INRIA Nancy Grand-Est Research Centre has 21 research teams, involving more than 450 employees. The goal of the CORTEX project-team (http://cortex.loria.fr) is to study the properties and capacities of neural computation, seen as distributed, numerical and adaptative information processing. More precisely, we intend to show that such processing can allow for the realisation of intelligent systems, able to extract knowledge from data and to manipulate that knowledge to solve problems. These capabilities are obtained by defining neuronal connectionist models developped through two sources of inspiration, namely computational neurosciences and machine learning. The OpenViBE software (http://openvibe.inria.fr) is a free and open-source software platform dedicated to designing, testing and using brain-computer interfaces. Brain-Computer Interaction (or BCI) corresponds to the direct use of brain signals to send "mental commands" to an automated system such as a robot, a prosthesis, or a cursor on a computer screen. Typical BCI applications are medical (assistance to disabled people, real-time biofeedback) and multimedia (virtual reality, video games). The software engineer will work in close collaboration within a team of engineers, researchers, students working on the OpenViBE software and on Brain-Computer Interfaces, in the CORTEX team but also in collaboration with other INRIA Centers (Rennes, Sophia), and other partners (INSERM, CEA, UBISOFT) ; notably in the frame of a collaborative project OpenViBE2 involving 10 partners and focusing on the use of Brain-Computer Interfaces for video games.

Mission	The software engineer will work on development and scientific research related to CORTEX team activities and OpenViBE software. Main missions will be to extend the functionalities of the OpenViBE software and ensure its support and deployment. We hope OpenViBE will become a standard software in the scientific communities working on BCI. For this aim, the main tasks of the successful will consist in : (1) develop novel functionalities of the software to match users needs (for instance : increase of computational capabilities, advanced 3D brain visualization, compatibility with other software and machines) (2) ensure support, maintenance and spreading of the software (forge, website, forum, training session, etc).
Activities	The software engineer will be involved in an activity of research and experimentations inside a research team. This will induce : • Software development and experimentations : design, programming, testing, documentation ; • Participation to the technical decisions (languages, architecture, tolls) with the scientific leader ; • Participation to all tasks related to the support and deployment of the software (update and support of the forge, animation of the website, animation of the forum/hotline, development of technological demonstrators, preparation and organisation of training sessions and seminars)
Background of the candidate	• Studies in Computer Science, excellent skills in software development and associated tools (version, compilers, documentation, tests, debug, etc) • Programming Languages : C, C++, MATLAB ; • Knowledge/Motivation in : Neuroscience, and/or Signal-Processing • Excellent in technical and scientific English
How to apply?	Interested candidates should send CV, motivation letter, and names of references (optional), directly to : bougrain@loria.fr