



## OpenViBE to Become Medically Certifiable

**Born at Inria research center in Rennes, Brittany, France, circa 2009, OpenViBE has become a leading open source software for Brain Computer Interfaces (BCI) and neuroscience research. A spin-off of the institute owning an exclusive license of the software for commercial applications, Mensia Technologies markets this technology through its own line of products as well as services to other vendors or neurotherapists. The company and the scientists are now starting a joint effort to make the software medically certifiable, thus easing the future certification of OpenViBE-based applications created by third parties.**

With over 43,000 downloads, **OpenViBE** is now a well-established tool within the BCI community throughout the world. A software meant to enable real-time processing of brain signals, it is also used to develop custom applications for a variety of purposes, mostly in the booming field of electroencephalographic (EEG) brain monitoring.

What was once mainly a research prototype has gained so much maturity and traction that, not long from now, it might well underpin a host of medical solutions. The first of them is likely to be a neurofeedback training system for the treatment of Attention Deficit Hyperactivity Disorder (ADHD) among children currently being developed by **Mensia Technologies**.

But for that to happen, a pre-requisite has to be met: OpenViBE must first become medically certifiable. Indeed, as a research prototype, it does not yet match all the requirements of medical standards regarding, for instance, stability, engineering processes or documentation. Bringing the software to such quality level, therefore, calls for an additional effort for which Inria and Mensia have decided to join forces within CertiViBE Innovation Lab.

As scientist Anatole Lécuyer (1) explains, *“an Inria Innovation Lab is a rather new instrument meant to encourage common R&D between one of our institute’s research teams and a given SME. There are only a few such common laboratories at the moment, but their number is expected to grow as Inria wants to make it a vector for technology transfer. The first year of this CertiViBE project will be wholly dedicated to the development work needed to deliver a ready-to-certify core for OpenViBE.”*

For such purpose, two highly experienced engineers have been recruited and assigned distinctive roles. As a Quality Assurance specialist, the first one will define the functional requirements, while the second will be in charge of developing the software and the quality tests accordingly. The Q/A engineer will then ensure that requirements are met.

However, this undertaking is *“not about obtaining a medical certification for our software but making it certifiable as a component of future medical products that third parties may want to market someday. Indeed, whenever a vendor will decide to release a new solution based on OpenViBE, the certification of such solution will prove more straightforward since they will be able to rely upon a ready-to-certify software.”*

### Easy Switch to Commercial Version

Incidentally, the first such OpenViBE-based medical device is bound to be Mensia Technologies’s neurofeedback training solution for ADHD. *“In order to obtain a medical certification for our own application, we absolutely need a certifiable version of OpenViBE, remarks company CTO Yann Renard. So we have a very direct and keen interest in this common project. But more generally speaking, it will also make technology transfer to other vendors much easier. By the same token, it will facilitate the switch from the open source version to the commercial one. Imagine a neurologist who would have been using OpenViBE for several years in the context of their research. The minute they will decide to market a product out of their findings, they will be able to buy a licence and switch seamlessly to the commercial version. There will be no time-consuming code rewriting involved as both versions will share the same ready-to-certify foundation.”* Be that as it may, OpenViBE will also continue to be published as an open source software. Version 1.2.0 is to be released in spring 2016.

*“We hope all this work will contribute to ease the development of OpenViBE-based clinical applications, thus boosting the transfer of our technology to the healthcare industry, Lécuyer confirms. That’s the door CertiViBE is meant to open. But the project will also prolong the compatibility between the two ecosystems. Otherwise, with the company bent on making the software certifiable and Inria obviously more focused on research-oriented developments, OpenViBE would ineluctably end up forking. Working hand in hand on the certification will enable us to remain close together, to maintain a common version and to keep working on the same tool. As a matter of fact, in phase two of this project, we plan to jointly conduct some new research.”*

From an Inria perspective, there is actually yet another advantage to this effort: *“Working on the medical certification of a software is a something rather new for the institute. So we plan to test this process, garner experience and build-up know-how. For, there are several other Inria prototypes that may give rise to medical products.”*

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Note:

(1) Anatole Lécuyer heads **Hybrid**, a research project-team of Inria, **Rennes 1 University** and **Insa Rennes**, common to **Irisa** (UMR CNRS 6074). He is also a co-founder of Mensia Technologies together with Jean-Yves Quentel, Yann Renard and IT Translation, a fund created by Inria and CDC Entreprises to support IT ventures born from French public research.