The year 2016 was a very active year for the society. Both the 20th IFESS conference in La Grande Motte, France and the 12th triannual IFESS Vienna Workshop have been very successful events in our calendar. A short report with highlights from the 20th IFESS anniversary conference can be found below.

Another noteworthy event for the IFESS community was the FES challenge at the Cybathlon in Zurich. Robert Riener, the Cybathon initiator and long-time IFESS member and BoD presents here a short after event report. Also, I would like to remind you that the Abstract submission deadline for this year’s IFESS conference at the Rehabweek 2017 in London has been extended to Feb. 20, 2017. Stay active and submit your latest FES results. After the Chicago workshop in 2015 the BoD continued its work on reorienting IFESS in several working meetings and decided on new vision and mission statements that I just recently presented in the Letter from the President. We believe these statements serve as starting pillars for the renewal of our activities and services. Leaves me to thank you for your confidence in the newly and re-elected BoD and Officers of IFESS!

Thierry Keller, President IFESS

Any IFESS member can contribute by sending a message (150 words max) to christine.azevedo@inria.fr

NEWS FROM IFESS

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MEMBERS’ CORNER

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NEWS

Prof. Dr. Nozomu Hoshimiya (75 years old) who was a longtime member of IFESS was fighting with malignant lymphoma, but passed away on January 25th. Prof. Hoshimiya was born in Japan in 1941. He received the Ph.D. degree in electronic engineering from Tohoku University, Sendai, Japan, in 1969. From 1982 to 1988, he was a Professor in the Research Institute of Applied Electricity, Hokkaido University. Starting in 1988, he was a Professor in Graduate School of Engineering, Tohoku University (Chair of Biomedical Electronics). Then, he acted as a Vice-President of Tohoku University in 2001-2002 and the President of Tohoku Gakuin University in 2004–2013. Prof. Hoshimiya in the IFESS Board of Directors from 1999 to 2000 and President of Japan FES Society from 2003 to 2007. He had made pioneering research on FES control of paralyzed upper limbs, making medical engineering collaboration team with Professor Yasunobu Handa of Tohoku University School of Medicine. Especially it is noteworthy that this team under leadership by Prof. Hoshimiya and Handa succeeded firstly to control the completely paralyzed upper limbs including the shoulder in C4 quadriplegic patients. IFESS society offers its sincere heartfelt condolences to his wife Mrs Tomiko Hoshimiya.

Prof. Yasunobu Handa

Prof. Robert Riener
20th IFESS conference, Montpellier, France. The 20st Anniversary IFESS conference took place in La Grande Motte, close to Montpellier last June https://ifess2016.inria.fr/. The conference was a great success. Abstracts are available in Vol.26, No2-4 of European Journal of Translational Myology. Best papers have been selected for publication in an extended version in Artificial Organs Journal special issue to be published soon.

Conferences announcement

IFESS at RehabWeek 2017, QEI Center, London July 17-20, 2017

A number of great FES conference workshops have been selected from the Rehabweek Scientific Committee. The competition was extremely high. For the 28 available workshop slots we received more than 40 applications, filling 94 slots. 11 workshop applications have been made with topics around FES or from active IFESS members. 8 FES related workshops have been selected:

1) P. Taylor: Future Directions for Functional Electrical Stimulation and Foot Drop
2) G. Davis: FES Exercise for Health and Fitness Benefits: The State of the Art
3) G. Alon: Functional Electrical Stimulation (FES): On the Road to Personalized Intervention
4) A. Vuckovic: BCI and Functional Electrical Stimulation for Rehabilitation of Movement
5) Ning Lan: Neurorehabilitation Based on Novel Electromyographic Metrics for FES and AT
6) W. Jensen: Novel technologies & natural sensory feedback for phantom limb pain modulation and therapy
7) F. Tomaszyk: Case studies in Neurorehabilitation using Functional Electrical Stimulation
8) N. Donaldson: Do the medical device regulations limit innovation in rehabilitation?

The RehabWeek Workshop program and more details to the workshops can be found here. So, in 2017 the RehabWeek will be the number 1 event to send your students or collaborators to learn about the latest FES technologies or knowledge in interactive workshops.

Selection of new publications in the field of FES


**New projects**

**European Project RETRAINER** The European Project RETRAINER [www.retrainer.eu](http://www.retrainer.eu), (grant agreement No 64472) is aimed at tuning and validating advanced, robot-based technologies supported by FES to facilitate recovery of arm and hand function in stroke survivors. RETRAINER includes two subsystems: S1 is a 3 degrees of freedom exoskeleton combined with FES triggered by EMG to provide additional support to the weakest muscles; S2 exploits a wearable FES system with arrays of electrodes for supporting hand grasping. The RETRAINER graphical user interface drives the patient into a set of occupational therapy exercises monitoring patients’ involvement and accomplishment of tasks step by step within each exercise. The pilot test validation was successfully finished. All of the patients were able to use the system and judged positively its wearability and the provided support. A multicenter randomized controlled trial involving about 136 stroke patients aimed at evaluating the superiority of the RETRAINER system with respect to the usual care is just started in two rehabilitation centres: Villa Beretta rehab. centre in Italy, and Asklepios Neurologische Klinik Falkenstein in Germany.
The Intra-Cortical Visual Prosthesis Research. The number of people, world-wide, with vision loss is rising rapidly due to the aging of the population and the increase in diabetes and macular degeneration. Since there is no cure for blindness, artificial vision systems are the best alternative for treating individuals with blindness. 70% of persons with blindness will not be gainfully employed in their lifetime. People with blindness often suffer from depression and social disconnection with others.

Illinois Institute of Technology (IIT) in partnership with seven institutions, including University of Chicago, Johns Hopkins University, University of Texas, Dallas, Sigenics, Inc, MicroProbes for Life Science (MLS), and the Chicago Lighthouse, has recently received an $11.8M award, funded by the National Institutes of Health under the BRAIN Initiative, to test the Intracortical Visual Prosthesis (ICVP) system in a clinical trial. The ICVP system captures an image with a camera and then directly stimulates the visual cortex of the brain, via intracortical electrodes that are contained within numerous implanted wireless modules called wireless floating microelectrode arrays (WFMA). The goal is to produce artificial vision within the brain, bypassing the eyes entirely. IFESS member Philip Troyk is the project leader. The project plan includes a 2-year pre-clinical phase, for obtaining FDA approval, and a 3-year clinical phase in which five volunteers who have little to no light perception will be implanted.

Following the pioneering work of Giles Brindley, the origins of the ICVP project date back to the early 1970s during which the NIH began funding numerous fundamental studies towards the goal of implanting a multichannel intracortical visual prosthesis system. This program culminated in the short-term implantation of a human volunteer to test the basic concept. In 2000 Troyk’s team was formed with the goal of bringing the ICVP system to human testing through a clinical trial. Over the past 17 years, the ICVP team has methodically developed technology, surgical methods, visual testing methods, performed safety testing, and devised structured volunteer support services. Previously funded by a 5-year NIH Bioengineering Research Partnership of $3.5M, a $1M, 2-year, Telemedicine & Advanced Technology Research Center (TATRC) grant from the US Army, as well by private foundations and donors, the ICVP technology has reached a point of readiness for this clinical trial. The IIT team has started the preclinical testing phase of the Early Feasibility Clinical Trial, needed to obtain FDA approval, with the first ICVP system planned for implantation in early 2019.

The Research reported here is supported by the National Institute of Neurological Disorders and Stroke of the National Institutes of Health under Award Number UG3NS095557. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. For more information, see: http://neural.iit.edu/ or contact Philip Troyk at troyk@iit.edu. For more information please call: (312) 567-5304

Next IFESS Newsletter will be issued in June. Any member can send contributions before May 15th (150 words max). Contributions can include: conferences announcement, special issues call for papers, phd thesis defense announcement, new publications, new projects, job offers. If you have suggestions to improve IFESS-NL please let us know as well. christine.azevedo@inria.fr