Curriculum Vitae

Name: prof. dr. Marta Molinas
Institution: Norwegian University of Science and Technology, Department of Engineering Cybernetics,
7491 Trondheim, Norway. http://www.ntnu.edu/employees/marta.molinas
Education and Training: Dr Eng. in Electrical Engineering, **awarded on September 30, 2000** from Tokyo Institute of Technology (Tokyo, Japan)
Complete list of publications available at: http://scholar.google.com/citations?user=hzJ_rK0reicC&hl=en

Research Areas

Starting in 2014 and after 11 years of working on the stability of power electronics systems, Molinas has expanded her research area into non-stationary signal analysis, from the domain of harmonics in power systems into the domain of biological systems. For that purpose, the group is now developing generic platforms for non-linear and non-stationary signals analysis suitable for both physical and biological systems (electrical grids, EEG signals). The initial steps of this research were demonstrated through the translation of brain signals into commands for the actuation of drones resorting to the motor imagery concept. The long-term goal of the research is to contribute with a better understanding of the properties of electrical signals:

- from the electricity grid, that is undergoing changes that affect the typically periodic nature of their signals due to the modernization of the power grid
- from electroencephalography (EEG), to better understand the mechanism behind the decay of cognitive functions and brain aging

Professional experience

August 2014-date	Professor, Department of Engineering Cybernetics, Norwegian University of Science and Technology (Trondheim, Norway)
Jan 2008-July 2014	Professor, Department of Electric Power Engineering, Norwegian University of Science and Technology (Trondheim, Norway)
July 2013-July 2014	Visiting Scientist at Columbia University, Earth Institute Millennium Village Project
2008-2009	JSPS Postdoctoral Fellowship for 10 months research at AIST, (Tsukuba, Japan)
2005-2007	Postdoctoral research associate, Center for Renewable Energy (SFFE-NTNU), supported by a competitive fellowship from the Research Council of Norway, (Trondheim, Norway)
2004-2005	Postdoctoral research associate, Department of Electric Power Engineering (NTNU) supported by a competitive NTNU scholarship (Trondheim, Norway)
1997-2001	Research associate, Research Laboratory for Nuclear Reactors, (Tokyo, Japan)

Principal scientific responsibilities

- Supervision: Currently supervising 5 PhDs, 3 Postdocs and 6 Masters. **Graduated 16 PhDs and 51 Masters**
- Supervisor of 12 Master Theses on **Adaptive Signal Analysis**
- Expert Evaluator for the European Research Council ERC-Starting Grant 2016
- Expert Evaluator for the European Commission Horizon 2020 LC5 and LC6, 2015
- Expert Evaluator for the European Commission FP7 DG Energy since 2008 to date

Selected Media, Journal and Conference Publications

In the Media in 2015 related to Adaptive Signal Analysis and Brain Computer Interface

Automatisering: http://www.automatisering.org/artikler/forsker-pa-tankestyring/224650
Gemini: http://gemini.no/2015/09/tenk-tanken-og-fly-av-garde/
ABCnyheter: http://www.abcnyheter.no/livet/2015/09/06/194870294/tenk-tanken-og-fly-av-garde
TEK.no: http://www.tek.no/artikler/her-styrer-han-dronen-med-hjernebolger/192625
NRK: http://www.nrk.no/trondelag/far-drone-til-a-fly-ved-a-blunke-1.12492845
Radio: https://radio.nrk.no/serie/her-og-naa-hovedsending/DMNH01015615/10-08-2015#t=1h20m2s

Citations: 5847. H-index: 35 (Google Scholar) in the field of Power Electronics.

M. Bueno-Lopez, P. A. Munoz, E. Giraldo, **M. Molinas**, (2019). Electroencephalographic Source Localization based on Enhanced Empirical Mode Decomposition. *IAENG International Journal of*

Computer Science, vol. 46, no. 2, April 2019.

L.A. Moctezuma, **M. Molinas**, (2019). Subject identification from low-density EEG-recordings of resting-states: A study of feature extraction and classification. *Future of Information and Communication Conference*, 830-846.

M. Bueno-Lopez, E. Giraldo, **M. Molinas**, O.B. Fosso. (2019). The Mode Mixing Problem and its Influence in the Neural Activity Reconstruction. *IAENG International Journal of Computer Science*, vol. 46, no. 2, April 2019

L.A. Moctezuma, **M. Molinas**, (2019). Sex differences observed in a study of EEG of linguistic activity and resting-state: Exploring optimal EEG channel configurations., *The 7th International Winter Conference on Brain-Computer Interface,* Gangwon, South Korea.

P.A. Munoz, E. Giraldo, M. Bueno-Lopez, **M. Molinas**, (2019). Automatic Selection of Frequency Bands for Electroencephalographic Source Localization. *9th International IEEE/EMBS Conference on Neural Engineering (NER),* San Francisco, CA, USA, March 2019

P.A. Munoz, M. Bueno-Lopez, E. Giraldo, **M. Molinas**, (2018). Localization of Active Brain Sources from EEG Signals Using Empirical Mode Decomposition: A Comparative Study. *Frontiers in Integrative Neuroscience*, vol. 12, October 2018, DOI=10.3389/fnint.2018.00055. *2 citations*

M. Bueno-Lopez, P. Muñoz-Gutiérrez, E. Giraldo; **M. Molinas** (2018). Analysis of Epileptic Activity Based on Brain Mapping of EEG Adaptive Time-Frequency Decomposition. I: *Brain Informatics. BI 2018. Lecture Notes in Computer Science*. Springer Publishing Company 2018 ISBN 978-3-030-05586-8. p. 319-328. *2 citations*

L.A. Moctezuma, **M Molinas**, (2018). EEG-based Subjects Identification based on Biometrics of Imagined Speech using EMD. I: *Brain Informatics. BI 2018. Lecture Notes in Computer Science*. Springer Publishing Company 2018 ISBN 978-3-030-05586-8. p. 458-467. *1 citation*

M. Bueno-Lopez, E. Giraldo, **M. Molinas**, (2018). A new method for localizing activity in the brain based on Empirical Mode Decomposition and entropy function. *7th International BCI Meeting*, Pacific Grove, California, May 2018

M.V. Gasca, M. Bueno-Lopez, O.B. Fosso, **M. Molinas**, (2018). Time-Frequency analysis for nonlinear and non-stationary signals using HHT: A mode mixing separation technique. *IEEE Latin America Transactions* 2018, vol. 16, no.4, pp. 1091-1098. *1 citation*

Jing Lyu, **Molinas Marta**, Xu Cai, Frequency Domain Stability Analysis of MMC-Based HVDC for Wind Farm Integration, *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 11, no. 99, November 2015

Patent pending: Co-inventor of "Active Harmonic System Conditioner", applied by ULSTEIN, 2016
Examples of leadership in industrial innovation: Co-founder of ***Signal Analysis Lab***, a start-up from my student under a FORNY grant from the Research Council of Norway, 2016