Cristina Farmaki

Curriculum Vitae

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RESEARCH EXPERIENCE

January 2011 – present	FOUNDATION FOR RESEARCH AND TECHNOLOGY (FORTH) Computational BioMedicine Laboratory (CML)	CRETE, GREECE Heraklion, Greece

- **Research in** design and implementation of practical BCIs, EEG analysis for individualization of SSVEP-based BCIs and improving their performance.
- Epilepsy-related EEG analysis, detection and prediction of epileptic seizures.
- EEG findings in schizophrenia: study of the sensory gating deficit in patients suffering from schizophrenia and cocaine addicts.
- Study of EEG oscillatory patterns during perception of bistable images.
    - Brain Computer Interfaces, EEG analysis, Statistical analysis and Machine Learning, experience with performing EEG experiments, programming Arduino microcontrollers, EEG functional connectivity analysis

Supervisors: Principal Researcher Vangelis Sakkalis

July 2009 – August 2010	FOUNDATION FOR RESEARCH AND TECHNOLOGY (FORTH) Computational BioMedicine Laboratory (CML)	CRETE, GREECE Heraklion, Greece

- **Research** in medical image analysis for the development of algorithms and software dedicated to extract pathophysiological information from patients suffering from cancer.
    - MRI image analysis, statistical analysis, medical image segmentation and registration

Supervisor: Associate Professor Kostas Marias

EDUCATION

2006 – 2009	UNIVERSITY OF CRETE Computer Science Department **M.Sc. in BioMedical Engineering**	CRETE, GREECE

- Thesis topic: *A spatially adaptive active contour approach for improving semi-automatic cancer image segmentation*

2000 – 2006	UNIVERSITY OF PATRAS – POLYTECHNIC SCHOOL **Diploma (M.Sc. equivalent) in Electrical Engineering and Computer Technology**	PATRAS, GREECE

1994 - 2000	GENERAL HIGH SCHOOL OF KIATO **High School Degree**	KIATO, GREECE

PUBLICATIONS

In Scientific Journals

Farmaki C., Sakkalis V., Loesche F., & Nisiforou E.A. (2019). Assessing Field Dependence–Independence Cognitive Abilities Through EEG-Based Bistable Perception Processing. Frontiers in Human Neuroscience, 13:345, doi: 10.3389/fnhum.2019.00345.

Farmaki C., Sakkalis V. (2018). Low Cost Brain-Controlled Telepresence Robot: A Brain-Computer Interface for Robot Car Navigation. ERCIM News 114, *url:* https://ercim-news.ercim.eu/en114/r-i/low-cost-brain-controlled-telepresence-robot-a-brain-computer-interface-for-robot-car-navigation

Farmaki C., Sakkalis V., Gjini K., Boutros N. N., & Zouridakis G. (2014). Assessment of Sensory Gating Deficit in Schizophrenia Using a Wavelet Transform Methodology on Auditory Paired-Click Evoked Potentials. Modern Electroencephalographic Assessment Techniques. Neuromethods, 91, 205-229, Humana Press doi: https://doi.org/10.1007/7657_2014_71.

Skounakis E., **Farmaki C.**, Sakkalis V., Roniotis A., Banitsas K., Graf N., & Marias K. (2010). DoctorEye: A clinically driven multifunctional platform, for accurate processing of tumors in medical images. Intelligent signal and image processing in eHealth - The Open Medical Informatics Journal, 4, 105-115.

Farmaki C., Marias K., Sakkalis V., & Graf N. (2010). Spatially adaptive active contours: A semi-automatic tumor segmentation technique. International journal of computer assisted radiology and surgery , 5(4), 369-84.

In Proceedings (full-paper review)

Farmaki C., Krana M., Pediaditis M., Spanakis E., & Sakkalis V. (2019**).** Single-Channel SSVEP-Based BCI for Robotic Car Navigation in Real World Conditions. IEEE 19th International Conference on Bioinformatics and Bioengineering (BIBE), Athens, Greece, 28-30 October, 2019.

Giannakaki K., Giannakakis G., **Farmaki C.**, & Sakkalis V. (2017). Emotional state recognition using advanced machine learning techniques on EEG data. 30th IEEE International Symposium on Computer-Based Medical Systems, Thessaloniki, Greece, 22-24 June 2017.

Farmaki C., Christodoulakis G., & Sakkalis V. (2016). Applicability of SSVEP-based BCIs for robot navigation in real environments. IEEE 38th Annual International Conference of the Engineering in Medicine and Biology Society (EMBC), Orlando, FL, USA, 16-20 Aug. 2016. IEEE (Electronic ISSN: 1558-4615, Print ISSN: 1557-170X), doi: 10.1109/EMBC.2016.7591304.

Makri D., **Farmaki C.**, & Sakkalis V. (2015). Visual fatigue effects on Steady State Visual Evoked Potential-based Brain Computer Interfaces. 7th International IEEE/EMBS Conference on Neural Engineering (NER), 2015.

Sakkalis V., Giannakakis G., **Farmaki C.**, Mousas A., Pediaditis M., Vorgia P., & Tsiknakis, M.N. (2013). Absence seizure epilepsy detection using linear and nonlinear EEG analysis methods. 35th Annual International Conference of the IEEE Engineering in Medicine and Biology.

Giannakakis G., Sakkalis V., Pediaditi, M., **Farmaki C.**, Vorgia P., & Tsiknakis M.N. (2013). An approach to absence epileptic seizures detection using approximate entropy. 35th Annual International Conference of the IEEE Engineering in Medicine and Biology.

Vorgia P., Giannakakis G., Sakkalis V., Pediaditis M., **Farmaki C.**, Voutoufianakis S., & Tsiknakis, M.N. (2013). Ανίχνευση αφαιρέσεων με χρήση προσεγγιστικής εντροπίας. του 8ου Πανελλήνιου Συνεδρίου Επιληψίας.

Farmaki C., Mavrigiannakis K., Marias K., Zervakis M.E., & Sakkalis V. (2010). Assessment of Automated Brain Structures Segmentation based on the Mean-shift Algorithm: Application in Brain Tumor. ITAB2010, Corfu, Greece, November 2-5.

Sakkalis V., Roniotis A., **Farmaki C.**, Karatzanis I., & Marias K. (2010). Evaluation framework for the multilevel macroscopic models of solid tumor growth in the glioma case. 32nd IEEE-EMBS, Engineering in Medicine and Biology Society (EMBC 2010), Buenos Aires, Argentina, August 31-September 4, 2010.

Zepp J., Graf N., Skounakis E., Bohle R., Meese E., Stenzhorn H., Yoo-Jin K., **Farmaki C.**, Sakkalis V., Reith W., Stamatakos G.S., & Marias K. (2010). Tumor segmentation: The impact of standardized signal intensity histograms in glioblastoma. 4th International Advanced Research Workshop on In Silico Oncology and Cancer Investigation, Athens, Greece, September 8-9.

Farmaki C., Marias K., Sakkalis V., & Graf N. (2009). A spatially adaptive active contour method for improving semi-automatic medical image annotation. World Congress on Medical Physics and Biomedical Engineering, 7-12 September (vol. 25/4, pp. 1878-1881). (1680-0737).

Marias K., Sakkalis V., Roniotis A., **Farmaki C.**, Stamatakos G.S., Dionysiou D.D., Giatili S., Uzunoglu N.K., Graf N., Bohle R., Messe E., Coveney P.V., Manos S., Wan S., Folarin A., Nagl S., Büchler P., Bardyn T., Reyes M., Clapworthy G., Mcfarlane N., Liu E., Bily T., Balek M., Karasek M., Bednar V., Sabczynski J., Opfer R., Renisch S., & Carlsen I.C. (2009). Clinically Oriented Translational Cancer Multilevel Modeling: The ContraCancrum Project. World Congress on Medical Physics and Biomedical Engineering, Munich, Germany, September 7-12 (pp. 2124-2127).

LANGUAGES

Greek : Native competence

English: Certificate of **Proficiency** (University of Michigan)

Spanish: Diploma de Español como lengua extranjera (**nivel b2**)

OTHER QUALIFICATIONS

Skills
- Experienced with MS office suite
- Experienced with programming (C++, Matlab, Python, Arduino)
- Experienced with **fMRI analysis** and **EEG analysis**
- Image and signal processing, Machine Learning, Statistical analysis

Voluntary work
- Volunteering position in the non-governmental organization "Nataté", San Cristobal de Las Casas, Chiapas, México, September - November 2010

Interests - Leisure activities
- Contemporary dance, photography, volunteering

CONFERENCES ATTENDANCE

- **World Congress on Medical Physics and Biomedical Engineering,** 7 – 12 September 2009, Munich, Germany
- **E-Health Forum**, 25 – 26 October 2016, Athens, Greece

PARTICIPATION IN RESEARCH PROJECTS

- **ContraCancrum-** Clinically Oriented Translational Cancer Multilevel Modelling (ICT-2007.5.3: Virtual Physiological Human).
- **TUMOR**, Transatlantic TUmour MOdel Repositories (Information Society and Media Directorate General)

- **AI-CARE**, Advanced Knowledge Management Systems with Internet Computational Efficiency and Applications in Health Care (Cooperation 2011 - 11SYN-6-2009)
- **iAMA -** Interpreting Άτομα με Αναπηρία, a reliable brain-computer communication system enabling patients suffering from severe neuromuscular paralysis to act independently and socialize (RESEARCH – CREATE – INNOVATE, project code: T1EDK-01675).

REFERENCES

Available upon request