

EUROPEAN
CURRICULUM VITAE



PERSONAL INFORMATION

Name SPRUGNOLI, GIULIA

Address VIA ALDO MORO 34, 53048, SINALUNGA, (SI), Italy

Telephone number USA: +1(617)7496710; ITALY: +39-3491912039

E-mail sprugnoli3@student.unisi.it; giulia.sprugnoli@studenti.unipr.it

Nationality Italian

Date of birth 01/01/1990

EDUCATION AND TRAINING

September 2004 - July 2009

- Name and type of education institute I. I. S. S. Poliziano (**Scientific High School**, Montepulciano, Siena, Italy)
- Key subjects Maths, Physics, Science, Informatics
 - POMUS-Centoclassi Projects (last year of high school): organized by Engineering Faculty of Siena (discussion and application of mathematical and physical theories with faculty's professors)
- Qualification Scientific High School Diploma with a score of 98/100

September 2009 – July 2015

- Name and type of education institute **Medicine and Surgery University, Siena, Italy**
- Training experience
 - 3-months internship (October 2010 - December 2010) at the Department of Biochemistry (Le Scotte Hospital, University of Siena, Prof. Roberto Leoncini): first approach with PCR, Western blot, SDS-page, high-pressure liquid chromatography;
 - 2-years internship (October 2012 - October 2014) at the Department of Neurosurgery, (Le Scotte Hospital, University of Siena, Prof. Giuseppe Oliveri), first approach to neurosurgical techniques and examination of a surgery candidate;
- Training experience
 - 1-years internship (October 2014 - July 2015) at the Si-BIN lab (Siena Brain Investigation and Neuromodulation laboratory, Prof. Simone Rossi and Dr. Emiliano Santarnecchi; Department of Neurology, Prof. Alessandro Rossi, Le Scotte Hospital, University of Siena): testing the influence of electric current and magnetic stimulation (tDCS, tACS, tRNS, TMS) on components of intelligence (e.g. working memory, processing speed, insight, creativity) through behavioral tests and neurophysiological techniques (fMRI: functional magnetic resonance imaging, EEG: electroencephalography), to enhance them and to reveal their neurophysiological and biological correlates;
 - General English Course (6 July 2015 – 19 July 2015) in **Central Language School of Cambridge** (UK), (King's college's scholarship);
- Qualification (23 July 2015) Bachelor of Medicine and Bachelor of Surgery (MD) with a final score of 110/100 with merit (exams weighted average score: 29,8/30).

July 2015 – October 2016

- Name and type of education institute **Internship at the Si-BIN lab:** coordinator of the Si-BIN lab experiments. In detail, developer of protocols, recruiter of participants, executor of the fMRI scanning and stimulations for:
 - (i) multifocal tDCS on healthy subject during fMRI scan to obtain a network modulation;
 - (ii) cortico-cortical Paired Associative Stimulation (ccPAS) to modulate functional connectivity and fluid intelligence on healthy subjects (assessed by fMRI analysis and behavioral tests);
 - (iii) video-game training experiment of one month with 1-year follow-up (fMRI and behavioral tests) on healthy subjects;
 - (iv) neurobiological correlates of top-level karate performers assessed with fMRI, cognitive and motor tests
 - (v) multifocal tDCS on patients with brain cancers to obtain tumoral perfusion reduction.

November 2015 – January 2016:

Training for Italian License to Medical Practice: internships in the Department of Surgery, of Internal Medicine (Le Scotte Hospital, Siena) and with a general practitioner (Doctor Liliana Gradi, Neurophysiologist, Siena).

• Qualification Italian License to Medical Practice (February, 2016)

November 2016 – In course

• Name and type of education institute **Radiology resident** (University Hospital of Parma, Italy; Prof. Nicola Sverzellati) and **researcher** for the **Si-BIN lab** (Le Scotte Hospital, University of Siena, Italy, Prof. Simone Rossi, Dr. Emiliano Santarnecchi)

January 2019 – In course

Post-doctoral research fellow at **Berenson-Allen Center for Noninvasive Brain Stimulation**, Beth Israel Deaconess Medical Center (Dr. Emiliano Santarnecchi, Harvard Medical School, Boston, USA)

May 2019 – In course

Collaborator for the **Image Guided Neurosurgery Laboratory**, Brigham and Women's Hospital (Dr Alexandra Golby, Harvard Medical School, Boston, USA)

PERSONAL SKILLS

MOTHER TONGUE

ITALIAN

OTHER LANGUAGES(S)

ENGLISH: PET (B1), FCE (B2), GENERAL ENGLISH COURSE

FRENCH: DELF CERTIFICATE (A2)

COMMUNICATION SKILLS

Consolidated communication skills gained through my experience as catechist in my native church (San Pietro ad Mensulas, Sinalunga, Siena) and matured by the medical training program in the hospital

ORGANIZATIONAL /
MANAGERIAL SKILLS

Coordinator of (i) a multi-centric scientific study at Si-BIN lab of Siena in collaboration with the Faculty of Medicine, Harvard University (Boston, MA, USA), University of South California (Los Angeles, CA, USA) and University of Milano Bicocca (Milano, Italy) exploring the modulation of insight process by means tACS and tRNS, (ii) coordinator of all the experiments conducted from July 2015 to October 2016 at Si-BIN lab
Organizer of religious national conferences in the Holy Convent of Assisi (PG, Italy)

JOB-RELATED SKILLS

Execution of MRI exams (rs-fMRI, T1, DTI, T2) and transcranial magnetic and electrical stimulation studies (tACS, tRNS, tDCS, TMS techniques), (Le Scotte Hospital, Siena)

First aid service (assistance in ambulance, course organized by the Arciconfraternita di Misericordia di Siena - first aid volunteering no-profit organization)

European Computer Driving Licence (ECDL)

OTHER SKILLS

Playing piano for 7 years, volleyball for 10 years, occasionally tennis player

PRIZE

- 1) 6 July 2015: King's college's scholarship to attend an English course, promoted by University of Siena;
- 2) 29 September 2015: "Look to the future" grant, promoted by Merck & Co., (pharmaceutical company);
- 3) 1 November 2015: GIMBE For Young scholarship to attend an "Evidence-based Medical Practice" course;
- 4) 4 February 2016: XXV SIPF Prize for the best Italian MD thesis on psychophysiology and cognitive neuroscience: "The neurobiological basis of intrinsic cognitive processes and their modulation by new non-invasive electro-physiological techniques";
- 5) 4 October 2016: University of Siena Grant "Ideation, design and development of application exploiting the WEARHAP wearable haptic device" (incompatible with the subsequent medical residency).

1. **Neural Correlates of Eureka Moment.** Sprugnoli G, Rossi S, Emmendorfer A, Rossi A, Liew SL, Tatti E, di Lorenzo G, Pascual-Leone A, Santarnecchi E. *Intelligence*, 2017, 62, 99-118. doi: 10.1016/j.intell.2017.03.004
2. **Brain functional connectivity correlates of coping styles.** Santarnecchi E, Sprugnoli G, Tatti E, Mencarelli L, Neri F, Momi D, Di Lorenzo G, Pascual-Leone A, Rossi S, Rossi A. *Cogn Affect Behav Neurosci*. 2018 Mar 23. doi: 10.3758/s13415-018-0583-7
3. **Age of Insomnia Onset Correlates with a Reversal of Default Mode Network and Supplementary Motor Cortex Connectivity.** Santarnecchi E, Del Bianco C, Sicilia I, Momi D, Di Lorenzo G, Ferrone S, Sprugnoli G, Rossi S, Rossi A. *Neural Plasticity*, vol. 2018, Article ID 3678534, 2018. doi:10.1155/2018/3678534
4. **Functional Connectivity and Genetic Profile of a "Double-Cortex"-Like Malformation.** Sprugnoli G, Vatti G, Rossi S, Cerase A, Renieri A, Mencarelli MA, Zara F, Rossi A, Santarnecchi E. *Front Integr Neurosci*. 2018 Jun 12;12:22. doi: 10.3389/fnint.2018.00022. eCollection 2018
5. **Acute and Long-Lasting Cortical Thickness Changes Following Intensive First-Person Action Videogame Practice.** Momi D, Smeralda C, Sprugnoli G, Ferrone S, Rossi S, Rossi A, Di Lorenzo G, Santarnecchi E. *Behav Brain Res*. 2018 Jun 23. doi:10.1016/j.bbr.2018.06.013.
6. **Modulation of network-to-network connectivity via spike-timing-dependent noninvasive brain stimulation.** Santarnecchi E, Momi D, Sprugnoli G, Neri F, Pascual-Leone A, Rossi A, Rossi S. *Hum Brain Mapp*. 2018 Aug 16. doi: 10.1002/hbm.24329.
7. **Thalamic morphometric changes induced by First-Person-Action videogame training.** Momi D, Smeralda C, Sprugnoli G, Neri F, Rossi S, Rossi A, Di Lorenzo G, Santarnecchi E. *Eur J Neurosci*. 2018 Dec 16. doi: 10.1111/ejn.14272.
8. **Gamma tACS over the temporal lobe increases the occurrence of Eureka! moments.** Santarnecchi E, Sprugnoli G, Bricolo E, Costantini G, Liew SL, Musaeus SC, Salvi C, Pascual-Leone A, Rossi A, Rossi S. *Sci Rep*, 2019, Apr 8;9(1):5778. doi: 10.1038/s41598-019-42192-z
9. **Peculiarities of Functional Connectivity—including Cross-Modal Patterns—in Professional Karate Athletes: Correlations with Cognitive and Motor Performances.** Berti B, Momi D, Sprugnoli G, et al, *Neural Plasticity*, 2019. doi: 10.1155/2019/6807978.
10. **Reduction of intratumoral brain perfusion by noninvasive transcranial electrical stimulation.** Sprugnoli G, Monti L, Lippa L, Neri F, Mencarelli L, Ruffini G, Salvador R, Oliveri G, Batani B, Momi D, Cerase A, Pascual-Leone A, Rossi A, Rossi S, Santarnecchi E. *Sci. Adv.*, 5, eaau9309 (2019). doi: 10.1126/sciadv.aau9309.
11. **Cognitive Enhancement via Network-Targeted Cortico-Cortical Associative Brain Stimulation.** Momi D, Neri F, Coiro G, Smeralda C, Veniero D, Sprugnoli G, Rossi A, Pascual-Leone A, Rossi S, Santarnecchi E. *Cerebral Cortex*, bhz182, <https://doi.org/10.1093/cercor/bhz182>
12. **A Novel tDCS Sham Approach Based on Model-Driven Controlled Shunting.** Neri F, Mencarelli L, Menardi A, Giovannelli F, Rossi S, Sprugnoli G, Rossi A, Pascual-Leone A, Salvador R, Ruffini G, Santarnecchi E. *Brain Stimulation*, <https://doi.org/10.1016/j.brs.2019.11.004>.
13. **Microgravity and Cosmic Radiations During Space Exploration as a Window Into Neurodegeneration on Earth.** Sprugnoli G, Cagle YD, Santarnecchi E. *JAMA Neurol*. Published online November 25, 2019. <https://doi.org/10.1001/jamaneurol.2019.4003>
14. **Improving Choroid Plexus Segmentation in the Healthy and Diseased Brain: Relevance**

for Tau-PET Imaging in Dementia. Tadayon E, Moret B, Sprugnoli G, Monti L, Pascual-Leone A, Santarnecchi E; Alzheimer's Disease Neuroimaging Initiative. J Alzheimers Dis. 2020 Mar 2. doi: 10.3233/JAD-190706.

PRESENTATIONS

- April 9 2016, oral presentation: “**Analysis of functional connectivity of an epileptic patient with Double Cortex Syndrome**”, Sprugnoli G., Santarnecchi E., Marino D., Pucci B., Vatti G. IV Meeting SNO Toscana 2016 (Society of Hospital Neurologists, Neurosurgeons and Neuroradiologists, Pontedera PI, Italy);
- June 8 2016, oral presentation: “**Resting-State MRI applications**” for an advanced updating medical course (Multimodal Magnetic Resonance in Neuroradiology. Studying the brain from physiopathology to the functions, Le Scotte Hospital, Siena, Italy);
- October 27 2016, symposium presentation: “**Oscillatory Neuromodulation of Insight and Creativity brain processes**” XXIV National Congress of the Italian Society of Psychophysiology (SIPF, Milan, Italy);
- March 5-8 2017, poster presentation: “**Going beyond the Eureka moment: enhancement of insightful solutions by means of tACS and tRNS**”, Sprugnoli G., Liew S. L., Bricolo E., Costantini G., Salvi C., Musaeus C. S., Rossi S., Rossi A., Pascual-Leone A., Santarnecchi E. 2nd International Brain Stimulation Conference (Barcelona, Spain);
- December 4 2019, oral presentation: “**Reduction of Intratumoral Perfusion in Brain Cancers Patients by Noninvasive Electrical Stimulation**”, Sprugnoli G., Monti L., Lippa L., Neri F, Mencarelli L, Ruffini G, Salvador R, Oliveri G, Batani B, Momi D, Cerase A, Pascual-Leone A, Rossi A, Rossi S, Santarnecchi E., Radiological Society of North America (RSNA) Scientific Assembly and Annual Meeting.