

Sabato Santaniello
Assistant Professor
Biomedical Engineering Department, University of Connecticut

a. Professional Preparation

University of Napoli Federico II	Napoli, NA (Italy)	Control Engineering	Laurea	2004
University of Sannio	Benevento, BN (Italy)	Biomedical Engineering	PhD	2007
Johns Hopkins University	Baltimore, MD	Neural Engineering	Postdoc	2009-2013

b. Appointments

- 2014- Assistant Professor, Biomedical Engineering Dept., University of Connecticut.
- 2013-2014 Assistant Research Scientist, Institute for Computational Medicine, Johns Hopkins University.
- 2007-2009 Research Associate and Instructor, Dept. of Engineering, University of Sannio.
- 2006-2007 Visiting Research Scholar, Biomedical Engineering Dept., Duke University, Durham, NC. *Supervisor:* Prof. W. M. Grill.
- 2004-2006 Teaching Assistant, Dept. of Engineering, University of Sannio.
- 2004-2005 Graduate Research Assistant, Dept. of Engineering, University of Sannio.

c. Products

(i) Five products most closely related to the proposed project

1. Burns S.P., Santaniello S., Yaffe R.B., Jouny C.C., Crone N.E., Bergey G.K., Anderson W.S., Sarma S.V., "Network dynamics of the brain and influence of the epileptic seizure onset zone," *Proc. Nat. Acad. Sci. USA*, 2014; 111(49):E5321-30. **DOI:** 10.1073/pnas.1401752111
2. Santaniello S., Burns S.P., Anderson W.S., Sarma S.V. "An optimal control approach to seizure detection in drug-resistant epilepsy" in *A Systems Theoretic Approach to Systems and Synthetic Biology I: Models and System Characterization* (Kulkarni VV, Stan G-B, Raman K Eds.), p. 153-78. 2014, New York, NY: Springer. **DOI:** 10.1007/978-94-017-9041-3_6
3. Santaniello S., Sherman D.L., Thakor N.V., Eskandar E.N., Sarma S.V. "Optimal control-based Bayesian detection of clinical and behavioral state transitions," *IEEE Trans. Neural Syst. Rehabil. Eng.* 2012; 20(5):708-19. **DOI:** 10.1109/TNSRE.2012.2210246
4. Santaniello S., Burns S.P., Golby A.J., Singer J.M., Anderson W.S., Sarma S.V. "Quickest detection of drug-resistant seizures: an optimal control approach," *Epilepsy Behav.* 2011; 22 (Suppl. 1):S49-60. **DOI:** 10.1016/j.yebeh.2011.08.041
5. Yaffe R.B., Borger P., Megevand P., Groppe D.M., Kramer M.A., Chu C.J., Santaniello S., Meisel C., Mehta A.D., Sarma S.V. "Physiology of functional and effective networks in epilepsy," *Clin. Neurophysiol.*, 2015; 126(2):227-36. **DOI:** 10.1016/j.clinph.2014.09.009

(ii) Five other significant products

1. Santaniello S., McCarthy M.M., Montgomery E.B., Gale J.T., Kopell N., Sarma S.V. “Therapeutic mechanisms of high frequency stimulation in Parkinson’s disease and neural restoration via loop-based reinforcement,” *Proc. Nat. Acad. Sci. USA*, 2015; 112(6):E586-95. **DOI:** 10.1073/pnas.1406549111
2. Kang X., Sarma S.V., Santaniello S., Schieber M., Thakor N.V. “Task-independent cognitive state transition detection from cortical neurons during 3D reach-to-grasp movements,” *IEEE Trans. Neural Syst. Rehabil. Eng.*, 2015; 23(7):676-82. **DOI:** 10.1109/TNSRE.2015.2396495
3. Santaniello S., Montgomery E.B., Gale J.T., Sarma S.V. “Non-stationary discharge patterns in motor cortex under subthalamic nucleus deep brain stimulation,” *Front. Integr. Neurosci.*, 2012; 6:35. **DOI:** 10.3389/fnint.2012.00035
4. Santaniello S., Fiengo G., Glielmo L., Grill W.M. “Closed-loop control of deep brain stimulation: a simulation study,” *IEEE Trans. Neural Syst. Rehabil. Eng.*, 2011; 19(1):15-24. **DOI:** 10.1109/TNSRE.2010.2081377
5. Santaniello S., Fiengo G., Glielmo L., Catapano G. “A biophysically inspired microelectrode recording-based model for the subthalamic nucleus activity in Parkinson’s disease,” *Biomed. Signal Process. & Control*, 2008; 3(3):203-11. **DOI:** 10.1016/j.bspc.2008.03.001

d. Synergistic Activities

1. Member of Society for Neuroscience (SfN); IEEE (Control Systems; Engineers in Medicine & Biology); Biomedical Engineering Society (BMES); American Epilepsy Society (AES)
2. Organizer, Workshops “*Dynamical Neural Systems, Synchronization and Control*”, Dec. 2013; and “*Deep Brain Stimulation and Movement Disorders*”, May 2008
3. Organizer, Tutorial Session at 22nd Mediterranean Conference on Control and Automation, Jun. 2014, Palermo (Italy).
4. Reviewer, International Journals: *Biomedical Physics and Engineering Express*; *Biomedical Signal Processing and Control*; *Chaos*; *Frontiers in Human Neuroscience*; *Frontiers in Neuroscience*; *Frontiers in Systems Neuroscience*; *International Journal of Neural Systems*, *IEEE Transactions on Neural Systems & Rehabilitation Engineering*; *Journal of Biomedical Science and Engineering*; *Journal of Neural Engineering*; *Journal of Neuroscience Methods*; *Neurosurgery*; *Nonlinear Dynamics*; *Physiological Measurement*; *PLoS Computational Biology*; *PLoS One*. Reviewer, International Conference Proceedings: *IEEE Engineers in Medicine and Biology Society Annual Meeting (EMBC)*; *IEEE Conference on Decision and Control (CDC)*; *IEEE American Control Conference (ACC)*; *IEEE Australian Control Conference (AUCC)*; *IEEE Multi-Conference on Systems and Control (MSC)*; *IEEE Mediterranean Conference on Control and Automation (MED)*; *IFAC European Control Conference (ECC)*; *IFAC World Congress (IFAC)*; *ASME Dynamic Systems and Control Conference (DSCC)*
5. Grant Reviewer, Panelist: *NSF (USA)*, *King’s Health Partner’s Research and Development Challenge Fund (UK)*.