

MODELLO EUROPEO PER IL CURRICULUM VITAE



INFORMAZIONI PERSONALI

Nome **NEGRO FRANCESCO**
Indirizzo **VIA VERNAZZE N. 2**
BOVEZZO (BS), ITALIA C.A.P. 25073
Telefono **+393880935007**
Fax
E-mail **francesco.negro@unibs.it**

Nazionalità Italiana
Data di nascita 11/03/1978

ESPERIENZA LAVORATIVA

- Date (da – a) **12/2018 AD OGGI**
 - Nome dell'azienda e città Università degli Studi di Brescia
 - Tipo di società/ settore di attività Università
 - Posizione lavorativa Ricercatore di Tipo B
- Principali mansioni e responsabilità

- Date (da – a) **10/2016 – 09/2018**
 - Nome dell'azienda e città Università degli Studi di Brescia
 - Tipo di società/ settore di attività Università
 - Posizione lavorativa Marie Curie Individual Fellow (Assegnista di Ricerca)
- Principali mansioni e responsabilità Progetto NEURALCON finalizzato allo studio delle sinergie motorie in pazienti affetti da ictus ischemico attraverso l'analisi del segnale elettromiografico di superficie ad alta densità e tecniche avanzate di analisi del segnale.
Ricerca (70 %), Supervisione/Didattica (25 %), Amministrazione (5 %)

- Date (da – a) **01/2011 – 09/2016**
 - Nome dell'azienda e città Universitätsmedizin Göttingen, Georg-August-Universität, Göttingen, Germany
 - Tipo di società/ settore di attività Università
 - Posizione lavorativa Ricercatore Post-Doc
- Principali mansioni e responsabilità Ricerca (75 %), Supervisione/Didattica (20 %), Amministrazione (5 %)

- Date (da – a) **02/2006 – 11/2010**
 - Nome dell'azienda e città Aalborg University, Denmark
 - Tipo di società/ settore di attività Università
 - Posizione lavorativa Research Assistant
- Principali mansioni e responsabilità Ricerca (50 %), Supervisione/Didattica (25 %), Amministrazione (5 %)

ISTRUZIONE E FORMAZIONE

- | | |
|---|--|
| <ul style="list-style-type: none">• Date (dal – al o attualmente se si tratta del proprio impiego corrente)• Nome e tipo di istituto di istruzione o formazione• Principali studi / abilità professionali oggetto dello studio• Qualifica o certificato conseguita• Eventuali livelli nella classificazione nazionale (se pertinente) | <p>04/2011</p> <p>Universita'</p> <p>Titolo: Population Coding of Neural Drive in Human Motor Units during Voluntary Isometric Contractions
Supervisore: Prof. Dario Farina
Dottorato di Ricerca in Scienze Biomediche ed Ingegneria</p> |
| <ul style="list-style-type: none">• Date (dal – al o attualmente se si tratta del proprio impiego corrente)• Nome e tipo di istituto di istruzione o formazione• Principali studi / abilità professionali oggetto dello studio• Qualifica o certificato conseguita• Eventuali livelli nella classificazione nazionale (se pertinente) | <p>11/2005</p> <p>Universita'</p> <p>Titolo: Channel Estimation in OFDM Systems
Supervisore: Prof. S Benedetto and Prof. G Montorsi
Laurea Magistrale in Ingegneria delle Telecomunicazioni</p> |

CAPACITÀ E COMPETENZE PERSONALI

MADRELINGUA

ITALIANO

ALTRE LINGUE

- Capacità di lettura
- Capacità di scrittura
- Capacità di espressione orale

INGLESE

ECCELLENTE

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CAPACITÀ E COMPETENZE TECNICHE

Eventuale conoscenza di specifici macchinari o tecniche particolari, anche in ambito informatico/gestionali.

- IDENTIFICAZIONE DI MARKER NEURALI DALL'ANALISI DEL SEGNALE ELETTROMIOGRAFICO (EMG) INTRAMUSCOLARE E DI SUPERFICIE IN PAZIENTI CON DISABILITÀ MOTORIE (ICTUS, LESIONE SPINALE, NEUROPATIE PERIFERICHE, ECC...);
- ESTRAZIONE DI ATTIVITÀ DI SINGOLA UNITÀ MOTORIA DA SEGNALI EMG AD ALTA DENSITÀ DURANTE CONTRAZIONI VOLONTARIE E IN MODELLI ANIMALI;
- ANALISI DEI CAMBIAMENTI DELLE PROPRIETÀ DELLE UNITÀ MOTORIE IN PROTOCOLLI DI RIABILITAZIONE O ALLENAMENTO;
- ESTRAZIONE E QUANTIFICAZIONE DI CORRELAZIONE/COERENZA TRA SEGNALI NEURALI (EEG-EMG; EMG-EMG; MU-MU);
- MODELLIZZAZIONE DI RETI NEURALI SPINALI.

ARTICOLI SU RIVISTE SCIENTIFICHE INTERNAZIONALI CON PEER REVIEW

49) Del Vecchio A, Casolo A, **Negro F**, Scorcelletti M, Bazzucchi I, Enoka R, Felici F, Farina D (2018) The Increase in Muscle Force After Four Weeks of Strength Training is Mediated by Adaptations in Motor Unit Recruitment and Rate Coding. Accepted in **Journal of Physiology**

- 48) Murphy, Spencer A., **Francesco Negro**, Dario Farina, Tanya Onushko, Matthew J. Durand, Sandra K. Hunter, Brian D. Schmit, and Allison S. Hyngstrom. "Stroke Increases Ischemia-related Decreases in Motor Unit Discharge Rates." **Journal of neurophysiology** (2018).
- 47) Dideriksen, Jakob L., and **Francesco Negro**. "Spike-triggered averaging provides inaccurate estimates of motor unit twitch properties under optimal conditions." **Journal of Electromyography and Kinesiology** 43 (2018): 104-110.
- 46) Del Vecchio A, **Negro F**, Falla D, Bazzucchi I, Farina D, Felici F. (2018) Higher muscle fiber conduction velocity and early rate of torque development in chronically strength trained individuals. **J Appl Physiol** Jul 19. doi: 10.1152/jappphysiol.00025.2018. IF = 3.256, IF5 = 3.465, Q1 in *Physiology and Sport Science*, Cit: 0
- 45) Martinez-Valdes, Eduardo; Farina, Dario; **Negro, Francesco**; Del Vecchio, Alessandro; Falla, Deborah, (2018) "Early Motor Unit Conduction Velocity Changes To Hiit Versus Continuous Training," **Medicine & Science in Sports & Exercise**. Post Acceptance: June 29, 2018. IF = 4.291, IF5 = 4.727, Q1 in *Sport Science*, Cit: 0
- 44*) Thompson, Christopher K.*, **Francesco Negro***, Michael D. Johnson, Matthew R. Holmes, Laura Miller McPherson, Randall K. Powers, Dario Farina, and Charles J. Heckman. (2018) "Robust and accurate decoding of motoneuron behavior and prediction of the resulting force output." **The Journal of physiology**. IF = 4.540, IF5 = 4.784, Q1 in *Physiology and Neuroscience*, Cit: 0
- 43) Jakob Dideriksen, **Francesco Negro**, Deborah Falla, Signe Kristensen, Natalie Mrachacz-Kersting and Dario Farina. (2018) Coherence of the surface EMG and common synaptic input to motor neurons. **Frontiers in Human Neuroscience**. IF = 2.871, IF5 = 4.022, Q3 in *Neuroscience and Q2 in Psychology*, Cit: 0
- 42) Eduardo Martinez-Valdes, **Francesco Negro**, Deborah Falla, Alessandro De Nunzio, Dario Farina (2018) Surface EMG amplitude does not identify differences in neural drive to synergistic muscles **J of Applied Physiology** IF = 3.256, IF5 = 3.465, Q1 in *Physiology and Sport Science*, Cit: 1
- 41) Allison Hyngstrom, Spencer Murphy, Jennifer Nguyen, Brian Schmit, **Francesco Negro**, David Gutterman, and Matthew Durand, (2018) Ischemic Conditioning Increases Strength and Volitional Activation of Paretic Muscle in Chronic Stroke: A Pilot Stud, **J Applied Physiology** IF = 3.256, IF5 = 3.465, Q1 in *Physiology and Sport Science*, Cit: 0
- 40) Utku S. Yavuz, **Francesco Negro**, Robin Diedrichs, Dario Farina, Reciprocal inhibition between motor neurons of the tibialis anterior and triceps surae in humans. Accettato su **J Neurophysiology** (2018) IF = 2.502, IF5 = 2.755, Q3 in *Neuroscience and Q3 in Physiology*, Cit: 0
- 39) **Francesco Negro**, Claudio Orizio. "Robust Estimation Of Average Twitch Contraction Forces Of Populations Of Motor Units In Humans." (2017) Accepted on **Journal of Electromyography and Kinesiology** IF = 1.568, IF5 = 2.074, Q3 in *Rehabilitation and Q3 in Sport Sciences*, Cit: 1
- 38) Tamás Kapelner, **Francesco Negro**, Oskar Aszmann, Dario Farina "Decoding motor unit activity from forearm muscles: Perspectives for myoelectric control." **IEEE Transactions on Neural Systems & Rehabilitation Engineering** (2017). IF = 3.972, IF5 = 4.404, Q1 in *Rehabilitation and Q1 in Biomedical Engineering*, Cit: 0
- 37) Del Vecchio, Alessandro, **Francesco Negro**, Francesco Felici, and Dario Farina. "Distribution of muscle fiber conduction velocity for representative samples of motor units in the full recruitment range of the tibialis anterior muscle." **Acta Physiologica** (2017). IF = 5.930, IF5 = 4.155, Q1 in *Physiology*, Cit: 3
- 36) Del Vecchio, Alessandro, **Francesco Negro**, Francesco Felici, and Dario Farina. "Associations between Motor Unit Action Potential Parameters and Surface EMG Features." **Journal of Applied Physiology** (2017): jap-00482. IF = 3.256, IF5 = 3.465, Q1 in *Physiology and Q1 in Sport Science*, Cit: 5
- 35) Martinez-Valdes, E.*, **F. Negro***, C. M. Laine, D. Falla, F. Mayer, and D. Farina. "Tracking motor units longitudinally across experimental sessions with high-density surface electromyography." **The Journal of Physiology** 595, no. 5 (2017): 1479-1496. * contributed equally to this work. IF = 4.540, IF5 = 4.784, Q1 in *Physiology and Neuroscience*, Cit: 7
- 34) Farina, Dario, Ivan Vujaklija, Massimo Sartori, Tamás Kapelner, **Francesco Negro**, Ning Jiang, Konstantin Bergmeister, Arash Andalib, Jose Principe, and Oskar C. Aszmann. "Man/machine interface based on the discharge timings of spinal motor neurons after targeted muscle reinnervation." **Nature Biomedical Engineering** 1 (2017): 0025. Q4 in *Biomedical Engineering*, Cit: 13

- 33) Martinez-Valdes, Eduardo, Deborah Falla, **Francesco Negro**, Frank Mayer, and Dario Farina. "Differential Motor Unit Changes after Endurance or High-Intensity Interval Training." *Medicine and science in sports and exercise* (2017). IF = 4.291, IF5 = 4.727, Q1 in Sport Science, Cit: 6
- 32) Rodriguez-Falces, Javier, **Francesco Negro**, and Dario Farina. "Correlation between discharge timings of pairs of motor units reveals the presence but not the proportion of common synaptic input to motor neurons." *Journal of Neurophysiology* (2017): jn-00497. IF = 2.502, IF5 = 2.755, Q3 in Neuroscience and Q3 in Physiology, Cit: 0
- 31) A Stango, KY Yazdandoost, **F Negro**, D Farina. (2016) "Characterization of In-Body to On-Body Wireless Radio Frequency Link for Upper Limb Prostheses." *PloS one* 11 (10), e0164987. IF = 2.806, IF5 = 3.394, Q1 in Multidisciplinary Sciences, Cit: 1
- 30) **Negro, Francesco**, Silvia Muceli, Anna Margherita Castronovo, Ales Holobar, and Dario Farina. "Multi-channel intramuscular and surface EMG decomposition by convolutive blind source separation." *Journal of Neural Engineering* 13, no. 2 (2016): 026027. IF = 3.465, IF5 = 4.093, Q1 in Biomedical engineering and Q2 in Neurosciences, Cit: 43
- 29) **Negro, Francesco**, Utku Şükrü Yavuz, and Dario Farina. "The human motor neuron pools receive a dominant slow-varying common synaptic input." *The Journal of Physiology* (2016). IF = 4.739, IF5 = 4.898, Q1 in Physiology and Neuroscience, Cit: 9
- 28) Farina, Dario, **Francesco Negro**, Silvia Muceli, and Roger M. Enoka. "Principles of motor unit physiology evolve with advances in technology." *Physiology* 31, no. 2 (2016): 83-94. IF = 6.076, IF5 = 6.394, Q1 in Physiology, Cit: 25
- 27) **Negro F**, Kevin K, and Farina D. "Power spectrum of the rectified EMG: when and why is rectification beneficial for identifying neural connectivity?." *Journal of neural engineering* 12.3 (2015): 036008. IF = 3.493, IF5 = 3.859, Q1 in Biomedical engineering and Q2 in Neurosciences, Cit: 7
- 26) Castronovo, A. M., **Negro, F.**, Conforto, S., & Farina, D. (2015). The Proportion Of Common Synaptic Input To Motor Neurons Increases With An Increase In Net Excitatory Input. *Journal of Applied Physiology*, jap-00255. DOI: 10.1152/japphysiol.00255.2015. IF = 3.004, IF5 = 3.421, Q2 in Physiology and Q1 in Sport Science, Cit: 22
- 25) Czesnik D, Howells J, **Negro F**, Wagenknecht M, Hanner S, Farina D, Burke B and Paulus P, (2015) "Increased HCN channel driven inward rectification in benign cramp fasciculation syndrome", *Brain*, IF = 10.103, IF5 = 10.545, Q1 in clinical Neurology and Q1 in Neurosciences, Cit: 7
- 24) Dideriksen JL, **Negro F**, Farina F, (2015) "The Optimal Neural Strategy For A Stable Motor Task Requires A Compromise Between Level Of Muscle Co-Contraction And Synaptic Gain Of Afferent Feedback", *Journal of Neurophysiology*, doi: 10.1152/jn.00247.2015. IF = 2.653, IF5 = 3.193, Q3 in Neuroscience and Q2 in Physiology, Cit: 6
- 23) Muceli S, Poppendieck W, **Negro F**, Yoshida K, Hoffmann KP, Butler JE, Gandevia SC, Farina D, (2015) "Accurate and representative decoding of the neural drive to muscles in humans with multi-channel intramuscular thin-film electrodes", *Journal of Physiology*, doi: 10.1113/JP270902. IF = 4.731, IF5 = 4.951, Q1 in Physiology and Neuroscience, Cit: 24
- 22) Yavuz SU, **Negro F**, Sebik O, Holobar A, Frömmel C., Türker KS, Farina D, (2015) "Estimating reflex responses in large populations of motor units by decomposition of the high-density surface electromyogram", *Journal of Physiology*, doi: 10.1113/JP270635. IF = 4.731, IF5 = 4.951, Q1 in Physiology and Neuroscience, Cit: 11
- 21) Yavuz SU, **Negro F**, Falla D, Farina D, (2015) "Experimental Muscle Pain Increases The Variability Of The Neural Drive To Muscle And Decreases Motor Unit Coherence In The Tremor Frequency Band", *Journal of Neurophysiology*, doi: 10.1152/jn.00391.2015. IF = 2.653, IF5 = 3.193, Q3 in Neuroscience and Q2 in Physiology, Cit: 4
- 20) A Stango, **Negro F**, D Farina, "Spatial Correlation of High Density EMG Signals Provides Features Robust to Electrode Number and Shift in Pattern Recognition for Myocontrol", *IEEE Transaction on Neural Systems and Neurorehabilitation Engineering*, 2014. doi: 10.1109/TNSRE.2014.2366752 IF = 3.188, IF5 = 3.625, Q1 in Rehabilitation and Q1 in Biomedical Engineering, Cit: 30
- 19) L Petrini, K Hennings, X Li, **Negro F**, L Arendt-Nielsen, "A human experimental

- model of episodic pain”, *International Journal of Psychophysiology*, 2014 (In Press) IF = 2.882, IF5 = 2.923, Q3 in *Neurosciences and Q2 in Physiology*, Cit: 1
- 18) D Farina, **Negro F**, JL Dideriksen, (2014) “The effective neural drive to muscles is the common synaptic input to motor neurons”, *The Journal of physiology*, 2014. doi: 10.1113/jphysiol.2014.273581. IF = 5.037, IF5 = 5.113, Q1 in *Physiology and Neuroscience*, Cit: 38
- 17) **Negro F**, UŞ Yavuz, D Farina, “Limitations of the Spike-Triggered Averaging for Estimating Motor Unit Twitch Force: A Theoretical Analysis”, 2014, *PloS one* 9 (3), e92390. doi: 10.1371/journal.pone.0092390. IF = 3.234, IF5 = 3.702, Q1 in *Multidisciplinary Sciences*, Cit: 4
- 16) D Farina & **Negro F**, “Common Synaptic Input to Motor Neurons, Motor Unit Synchronization, and Force Control”, *Exercise and Sport Sciences Reviews*, 2014. doi: 10.1249/JES.0000000000000032. IF = 4.259, IF5 = 5.444, Q1 in *Rehabilitation and Q1 in Sport Sciences*, Cit: 4
- 15) D Farina, **Negro F**, N Jiang, “Reply from Dario Farina, Francesco Negro and Ning Jiang”, 2014, *The Journal of physiology* 592 (1), 251-252. doi: 10.1113/jphysiol.2013.267070. IF = 5.037, IF5 = 5.113, Q1 in *Physiology and Neuroscience*, Cit: 5
- 14) Farina D, **Negro F**, Jiang N. (2013) "Identification of Common Synaptic Inputs to Motor Neurons from the Rectified Electromyogram", *J Physiol* . doi: 10.1113/jphysiol.2012.246082. IF: 4.544, IF5 = 5.021, Q1 in *Physiology and Neuroscience*, Cit: 47
- 13) Rodriguez-Falces J, **Negro F**, Gonzalez-Izal M, Farina D. "Spatial distribution of surface action potentials generated by individual motor units in the human biceps brachii muscle", *J Electromyogr Kinesiol* 2013. doi: 10.1016/j.jelekin.2013.03.011. IF = 1.725, IF5 = 2.264, Q2 in *Rehabilitation and Q2 in Sport Sciences*, Cit: 13
- 12) Laine CM, **Negro F**, Farina D. (2013) "Neural correlates of task-related changes in physiological tremor", *J Neurophysiol* 2013. doi: 10.1152/jn.00041.2013. IF = 3.041, IF5 = 3.446, Q2 in *Neuroscience and Q2 in Physiology*, Cit: 12
- 11) Farina D, **Negro F**. "Accessing the neural drive to muscle and translation to neurorehabilitation technologies". *IEEE Rev Biomed Eng*. 2012;5:3-14. doi: 10.1109/RBME.2012.2183586., Cit: 34
- 10) **Negro F**, Farina D. Factors influencing the estimates of correlation between motor unit activities in humans. *PLoS ONE*, 2012;7(9). doi: 10.1152/jn.00938.2011. IF = 3.730, IF5 = 4.244, Q1 in *Multidisciplinary Sciences*, Cit: 40
- 9) Dideriksen JL, **Negro F**, Enoka RM, Farina D (2012) Motor unit recruitment strategies and muscle properties determine the influence of synaptic noise on force steadiness. *J NEUROPHYSIOL*, 107(12):3357-69. doi: 10.1152/jn.00938.2011. IF = 3.301, IF5 = 3.607, Q2 in *Neuroscience and Q2 in Physiology*, Cit: 59
- 8) Farina D, **Negro F**, Gizzi L, Falla D (2012) Low-frequency oscillations of the neural drive to the muscle are increased with experimental muscle pain. *J NEUROPHYSIOL*, 107: 958-65. doi: 10.1152/jn.00304.2011. IF = 3.301, IF5 = 3.607, Q2 in *Neuroscience and Q2 in Physiology*, Cit: 17
- 7) **F. Negro**, D. Farina, (2011) “Decorrelation of cortical inputs and motoneuron output”, *J. Neurophysiol*, Jul 27, 2011. doi: 10.1152/jn.00336.2011. IF = 3.316, IF5 = 3.713, Q2 in *Neuroscience and Q2 in Physiology*, Cit: 32
- 6) **F. Negro**, D. Farina, (2010) “Linear transmission of cortical oscillations to the neural drive to muscles is mediated by common projections to populations of motor neurons in humans”, *Journal of Physiology*, December 6, 2010, doi: 10.1113/jphysiol.2010.202473. IF: 5.139, IF5 = 4.982, Q1 in *Physiology and Neuroscience*, Cit: 56
- 5) Holobar, A., Minetto, M. A., Botter, A., **Negro, F.** & Farina, D. “Experimental analysis of accuracy in the identification of motor unit spike trains from high-density surface EMG”, In : *IEEE Transactions on Neural Systems and Rehabilitation Engineering* . 2010 18, 3, p. 221-229. doi: 10.1109/TNSRE.2010.2041593. IF = 2.182, IF5 = 3.188, Q1 in *Rehabilitation and Q2 in Biomedical*

Engineering, Cit: 82

4) **F. Negro**, A. Holobar, D. Farina, (2009) "Fluctuations in isometric muscle force can be described by one linear projection of low-frequency components of motor unit discharge rates", **Journal of Physiology**, 2009. doi: 10.1113/jphysiol.2009. . IF: **4.764**, IF5 = **4.998**, **Q1 in Physiology and Neuroscience, Cit: 100**

3) D. Farina, **F. Negro**, M. Gazzoni, R.M. Enoka, (2008) "Detecting the unique representation of motor-unit action potentials in the surface electromyogram", **J. Neurophysiol.**, vol. 100, pp. 1223-33, 2008. doi: 10.1152/jn.90219.2008. IF = **3.648**, IF5 = **3.990**, **Q2 in Neuroscience and Q1 in Physiology, Cit: 51**

2) D. Farina, C. Cescon, **F. Negro**, R.M. Enoka, (2008) "Amplitude cancellation of motor unit action potentials in the surface electromyogram can be estimated with spike-triggered averaging", **J. Neurophysiol.**, vol. 100, pp. 431-40, 2008. doi: 10.1152/jn.90365.2008. IF = **3.648**, IF5 = **3.990**, **Q2 in Neuroscience and Q1 in Physiology, Cit: 42**

1) D. Farina, **F. Negro**, (2007) "Estimation of Muscle Fiber Conduction Velocity with a Spectral Multi-Dip Approach", **IEEE Trans. Biomed. Eng.**, vol. 54, pp. 1583-9, 2007 IF: **1.622**, IF5: **2.226**, **Q2 in Biomedical Engineering, Cit: 24**

Autorizzo al trattamento dei dati personali, secondo quanto previsto dalla Legge 196/03



Brescia, 07/06/2019