

## Simone Ranaldi

PhD Student at Engineering Department, Università degli Studi Roma Tre  
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### EDUCATION

- **November 2017 – October 2020.** PhD in Applied Electronics (funded).
  - **Institute:** Engineering department, Università degli Studi Roma Tre
  - **Thesis:** “Modular motor control of the contralateral limb in lower limb amputees: neuro-mechanical evaluation of the prosthetic components on locomotion control.”
  - **Supervisor:** Prof. Silvia Conforto
- **October 2015 – July 2017.** Master’s Degree in Biomedical Engineering.
  - **Institute:** Università degli Studi Roma Tre
  - **Final mark:** 110/110 cum laude.
  - **Main topics:** Fundamentals of Biomedical Engineering, Biomedical Data Processing, Neural Engineering, Biomechanics, Human Physiology, Signal Processing for Biomedical Engineering, Biomaterials, Clinical Engineering, Biophotonics.
  - **Thesis:** “Modular motor control to assess gait characteristics in lower limb amputees”
  - **Supervisor:** Prof. Silvia Conforto
- **October 2014 – December 2015.** Bachelor’s Degree in Electronics Engineering.
  - **Institute:** Università degli Studi Roma Tre
  - **Final mark:** 102/110
  - **Main topics:** Electronics, Biomedical Instrumentation, Electromagnetic Fields, Photonics, Electronic Circuit, Automatic Control, Signal Theory.
  - **Thesis:** “Characterization of sensors for the recording of motor activity during the execution of musical exercises”.
  - **Supervisor:** Prof. Maurizio Schmid
- **October 2011 – September 2015.**
  - **Institute:** Physics department, Università degli Studi La Sapienza
  - **Final mark:** None
  - **Main topics:** Calculus, Geometry, Mechanics, Mechanics Laboratory, Thermodynamics with Laboratory, Electromagnetism, Analytical Mechanics, Relativistic Mechanics, Methods for Computational Physics, Signals and Systems Laboratory, Statistical Mechanics, Chemistry.

### PERSONAL SKILLS

- **Language:**
  - **Italian:** Mother Tongue
  - **English:** Proficient.
- **Technical skills:** Windows, Unix, Matlab, C, Arduino.

## **PUBLICATIONS AT CONFERENCES**

- “Modular motor control in trans-femoral amputees’ gait”. S.Ranaldi, C. De Marchis, M. Rinaldi, T. Varrecchia, A. Ranavolo, F. Draicchio, S. Conforto. IEA 2018, August 2018.
- “Muscle synergies of the contralateral lower limb in trans-femoral amputees’ gait”. S. Ranaldi, C. De Marchis, S. Conforto. XXII International ISEK Conference, June-July 2018
- “An automatic procedure for the accurate extraction of the sEMG envelope”. S. Ranaldi, C. De Marchis, S. Conforto. XXII International ISEK Conference, June-July 2018.
- “An automatic algorithm for the sEMG envelope estimation: evaluation on experimental data”. S. Ranaldi, C. De Marchis, S. Conforto. VI National GNB Congress, June 2018.
- “The effect of Non-Negative Matrix Factorization initialization on the accurate identification of muscle synergies with correlated activation signals”. Ranaldi, S., De Marchis, C., Rinaldi, M., & Conforto, S. (2018, June). 2018 IEEE International Symposium on Medical Measurements and Applications (MeMeA).
- “Modular motor control of the contralateral limb in trans-femoral amputees’ gait.” Ranaldi, S., De Marchis, C., Rinaldi, M., Varrecchia, T., Marchesi, A., Silveti, A., Serrao, M., Ranavolo, A., Schmid, M., Conforto, S. and Draicchio, SIAMOC 2017.

## **PUBLICATIONS ON PEER-REVIEWED JOURNALS**

- Ranaldi, S., De Marchis, C., & Conforto, S. (2018). An automatic, adaptive, information-based algorithm for the extraction of the sEMG envelope. *Journal of Electromyography and Kinesiology*, 42, 1-9.
- Soomro, M.H., Conforto, S., Giunta, G., Ranaldi, S. and De Marchis, C., 2018. Comparison of Initialization Techniques for the Accurate Extraction of Muscle Synergies from Myoelectric Signals via Nonnegative Matrix Factorization. *Applied bionics and biomechanics*, 2018.

## **DOCTORAL SCHOOLS**

- XXXVII Annual school of the Italian National Bioengineering Group. Bressanone (Brixen) 10-13 September 2018