



Nicolò Colistra, Ph.D.

Biomedical Engineer

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WORK EXPERIENCE

12/2023 – Current

Researcher | Italian National Agency for New Technology, Energy and Sustainable Economic Development (ENEA) - Rome – IT
SSPT- Division of Health Protection Technologies.

11/2022 – 11/2023

Research Fellow | University of Rome Tor Vergata - Rome – IT
Department of Electronic Engineering.

- Design, Development, and Software Engineering of innovative devices & advanced systems for the analysis and prediction of fitness level and performance of athletes and subjects affected by chronic diseases.
- Data Analysis, Signal processing algorithms, and Advanced sensors applied to healthy and pathological human walking analysis.

03/2021 – 07/2022

Chief Technology Officer (CTO)

Foresee Biosystems srl - Genova - IT

Prototyping, Testing, Validation, and Software Engineering of innovative platforms for Life Science applications.

02/2019 - 02/2021

Postdoctoral Researcher

Italian Institute of Technology (IIT) - Genova - IT

- Big Data Analysis, Acquisition and Processing Algorithms development for biomedical applications.
- Prototyping, Testing, Validation, and Software Control of a novel fully automated drug screening technology for cardiotoxicity assessment.

01/2017 - 10/2017

Visiting Researcher

IBM Almaden Research Center - San Jose - California - USA

During his PhD, NC worked at the IBM Research Innovation Lab, where he designed and fabricated novel microsensor arrays for studies in neuroscientific applications.

02/2016 - 09/2016

Teaching Assistant

University of Genova - Genova – IT

NC served as a teaching assistant for the teaching support of the Bionanotechnology Course during the a.a. 2015-2016.

EDUCATION

11/2015 - 12/2018

PhD in Bioengineering and Robotics

University of Genova - Genova - IT

Research activities at Neuroengineering and Bionanotechnology Laboratory in the fields of in-vitro electrophysiology and microsensor arrays.

Project Title - *An innovative three-dimensional (3D) Micro-Electrode Array (MEA) for in-vitro electrophysiological applications.*

11/2012 - 12/2014

Master's degree in Biomedical Engineering, 110/110 cum Laude

University Campus Bio-Medico of Rome - Rome - IT

Dissertation - *Electronic characterization of a liquid sensor for biomedical applications.*

11/2009 - 10/2012

Bachelor's degree in Biomedical Engineering, 110/110 cum Laude

University Campus Bio-Medico of Rome - Rome - IT

PERSONAL SKILLS

Language skills

English *Proficient*

Computer skills and competences

- Software Engineering, Multithreading programming
- Embedded systems programming: ▪ *Raspberry PI* ▪ *Arduino boards*
- GUI applications designing with **Qt** for Python, Matlab & LabVIEW
- Data Analysis, Acquisition, and Processing Algorithms
- Proficient in ▪ *Python* ▪ *MATLAB* ▪ *Simulink* ▪ *LabVIEW* ▪ *C++*
- Good with ▪ *R* ▪ *Visual Studio* ▪ *NI Multisim* ▪ *SolidWorks* ▪ *AutoCAD*
- Automation & Control of ▪ *Motorized platforms*
- Machine Learning, Deep Learning, and Data Science tools

Experimental competences

- Mechatronics, Electronics, Optics, Photonics
- Device Prototyping, Testing, and Validation
- Design and Development of optical systems for Laser-based Technologies
- Design, Development, and Validation of Biosensors in Clean Room

ADDITIONAL INFORMATION

Certifications

- Computer Vision Course, Kaggle online Community (2022).
- Deep Learning Course, Kaggle online Community (2022).
- Intermediate Machine Learning Course, Kaggle online Community (2022).
- Intro to Machine Learning Course, Kaggle online Community (2022).
- Licenced to Engineer Profession, University Campus Bio-medico (2015).

International Conferences and Competitions

- 3rd International Conference BEI-2023. Boston, MA, 11/2023.
- 20th International Conference ICINCO 2023. Rome, IT, 11/2023.
- PNI 2022, Innovation National Plan. Aquila, IT, 12/2022.
- StartCup Lazio 2022, Business Plan Competition. Rome, IT, 05/2022 - 10/2022.
- 11th International MEA Meeting 2018. Reutlingen, DE, 07/2018.
- GNB 2018. Milan, IT, 06/2018.
- 7th International School of Neuroengineering. Genova, IT, 06/2018.
- 10th International MEA Meeting 2016. Reutlingen, DE, 06/2016.
- School on Neurotechniques 2016. Padua, IT, 02/2016.
- XXXIV Bioengineering Annual School. Bressanone, IT, 09/2015.
- Biophysics@Rome Conference. Rome, IT, 05/2015.

Publications

- Verrelli C.M., Romagnoli C., **Colistra N.**, Ferretti I., Annino G., Bonaiuto V., and Manzi V. (2023). Golden Ratio and Self-Similarity in Swimming: The Breast-stroke and the Back-stroke. *Front. Hum. Neurosci.* 17. doi: 10.3389/fnhum.2023.1176866.
- **Colistra N.**, Pietrosanti L., El Arayshi M., Maurantonio S., Francavilla B., Giacomini P., and Verrelli C. (2023). Comprehensive Φ -Bonacci Index for Walking Ability Assessment in Paroxysmal Positional Vertigo: Role of Rehabilitation. In *Proceedings of the 20th International Conference on Informatics in Control, Automation, and Robotics - Volume 2: ICINCO*; ISBN 978-989-758-670-5; ISSN 2184-2809, SciTePress, pages 203-210. doi: 10.5220/0012237100003543.
- Iachetta G., Melle G., **Colistra N.**, Tantussi F., De Angelis F., Dipalo M. (2023). Long-term in vitro recording of cardiac action potentials on microelectrode arrays for chronic cardiotoxicity assessment. *Archives of Toxicology*. doi: 10.1007/s00204-022-03422-y.
- Iachetta G.*, **Colistra N.***, Melle G., Deleye L., Tantussi F., De Angelis F., Dipalo M. (2021). Improving reliability and reducing costs of cardiotoxicity assessments using laser-induced cell poration on microelectrode arrays. *Toxicology and Applied Pharmacology*. doi: 10.1016/j.taap.2021.115480.
- Bruno G., **Colistra N.**, Melle G., Cerea A., Hubarevich A., Deleye L., De Angelis F., Dipalo M. (2020). Microfluidic Multielectrode Arrays for Spatially Localized Drug Delivery and Electrical Recordings of Primary Neuronal Cultures. *Frontiers in Bioengineering and Biotechnology* 8, 626. doi: 10.3389/fbioe.2020.00626.
- Spanu A., **Colistra N.**, Farisello P., Friz A., Arellano N., Rettner C., Bonfiglio A., Bozano L., Martinoia S. (2020). A three-dimensional micro-electrode array for in-vitro neuronal interfacing. *Journal of Neural Engineering* 17(3):036033. doi: 10.1088/1741-2552/ab9844.
- Melle G., Bruno G., Maccaferri N., Iachetta G., **Colistra N.**, Barbaglia A., Dipalo M., De Angelis F. (2020). Intracellular Recording of Human Cardiac Action Potentials on Market-Available Multielectrode Array Platforms. *Frontiers in Bioengineering and Biotechnology* 8, 66. doi: 10.3389/fbioe.2020.00066.
- **Colistra N.**, Tedesco M., Massobrio P., Martinoia S. (2019). 3D engineered neuronal networks coupled to 3D-MEAs: a new experimental model for in-vitro electrophysiology. *MEA Meeting 2018 | 11th International Meeting on Substrate Integrated Microelectrode Arrays*. *Frontiers in Cellular Neuroscience*. doi: 10.3389/conf.fncel.2018.38.00061.
- Tedesco M., Di Lisa D., Massobrio P., **Colistra N.**, Pesce M., Catelani T., Dellacasa E., Raiteri R., Martinoia S., Pastorino L. (2017). Soft Chitosan microbeads scaffold for 3D functional neuronal networks. *Biomaterials* 156: 159-171. doi: 10.1016/j.biomaterials.2017.11.043.
- Tedesco M., **Colistra N.**, Massobrio P., Chiappalone M., Martinoia S. (2017). Structurally and functionally interconnected 3D in vitro neuronal assemblies coupled to Micro-Electrode Arrays. *8th International IEEE/EMBS Conference on Neural Engineering (NER)*. doi: 10.1109/NER.2017.8008334.
- **Colistra N.**, Tedesco M., Pastorino L., Martinoia S., Massobrio P. (2016). An Alternative Method for The Development Of 3D Engineered Neuronal Cultures. *MEA Meeting 2016 | 10th International Meeting on Substrate-Integrated Electrode Arrays*. *Frontiers in Neuroscience*. doi: 10.3389/conf.fnins.2016.93.00109.

AWARDS

- Winner of the **Business Plan Competition StartCup Lazio 2022** (SCL 2022).