NICOLO PECCO

PROFILE

PhD in Neuroscience and Experimental Neurology from Vita e salute San Raffaele specializing in the development of deep and machine learning models for analyzing MRI brain tumors and functional neurodevelopment data. Master's degree in Biomedical Engineering and licensed as Profession Engineer. Extremely interested in science and Artificial Intelligence algorithms and motivated to constantly develop new skills in this field. Different international Experiences during my university career. Excellent ability to organize, meet deadlines and able to work individually and in groups.

WORK HISTORY

Doctor of Philosophy - PhD, **11/2022 - Current**
Università Vita-Salute San Raffaele - *Milan, Italy*
PhD's project entitled 'Artificial intelligence of imaging and clinical neurological data for predictive, preventive and personalized medicine for Gliomas'.

Research Fellow, **05/2025 - 11/2025**
Mayo Clinic - *Rochester, Minnesota*
Machine and deep learning models development for radiology and clinical imaging applications.

Researcher, **04/2019 - 11/2022**
San Raffaele Hospital and Università Vita-Salute San Raffaele - *Milan, Italy*
Advance Magnetic Resonance Imaging pre- and post-processing in the field of neurological tumor and functional fetal MRI.
Main topics: Radiomics, machine learning and Deep learning.

CE marking **03/2017 - 08/2017**
2M engineers - Health & Industrial Sensor Solutions - *Valkenswaard, Netherlands*
European Certification (CE) of Medical devices (Class I device) and consumer product.

TEACHING HISTORY

Adjunct Lecturer – ING-INF/07 (Misure elettriche ed elettroniche) 11/2025 - 01/2026
Università Vita-Salute San Raffaele - *Milan, Italy*
Course: "Foundational Principles of Radiological Sciences" - BSc in Medical Radiologic Technology
Teaching load: 10 hours

EDUCATION

Professional Practice Exam, **State Exam (Sector: Industrial, Section: A)**, **01/2021**
Politecnico Di Torino - *Torino, Italy*

Master's Degree, **Biomedical Engineering – Bionanotechnology**, **09/2017 - 12/2019**
Politecnico Di Torino - *Torino, Italy*
Master's Thesis entitled 'Microstructural and technical constraints of drug infusion within the brain: a Diffusion MRI-based study' in collaboration with UniSR.
GPA: 103/110

Bachelor's Degree, **Biomedical Engineering, 09/2013 - 09/2016**
Università Degli Studi Di Cagliari - *Cagliari, Italy*
Bachelor's Thesis entitled 'Study of gender-related differences in gait analysis, balance and strength in healthy elderly individuals'
GPA: 98/110

PERSONAL DATA

Address: Milano, Italy 20133
Phone: +39 3935141335
Email: Nicopecco5@gmail.com
Date of Birth: 5th August 1994
Nationality: Italy
Hobbies: Music and Football
Languages: English and Italian

SKILLS

- Python
- MATLAB
- Artificial intelligence
- Data analysis
- Microsoft Office
- R

WEBSITES AND PROFILES

- linkedin.com/in/nicolo-pecco
- scopus.com/authid/detail.uri?authorId=57226855502

Erasmus+ Studio, 09/2015 - 02/2016
Łódź University of Technology - Łódź, Poland
International Erasmus studio Experience. Main topic studied: Semiconductor Devices, Medical Imaging, Fluid Dynamics and Robotics.

Diploma, **09/2008 - 06/2013**
Liceo scientifico A. Pacinotti - Cagliari, Italy

PUBLICATIONS

Cara, C., Canini, M., Oprandi, C., Pecco, N., Cavoretto, P. I., Candiani, M., ... & Rosa, P. A. D. (2025). Prenatal brain connectivity and postnatal language: how familial risk and prenatal speech exposure shape early language skills. *Scientific Reports*, *15*(1), 33281.

Gallotti, A. L., Pecco, N., Pieri, V., Cominelli, M., Brugnara, G., Altabella, L., ... & Galli, R. (2025). Non-invasive identification of mesenchymal glioblastoma using quantitative radiomic features from advanced diffusion MRI: a preclinical-to-clinical transfer learning strategy. *European Radiology Experimental*, *9*(1), 111.

Veronese, L., Moglia, A., Pecco, N., Della Rosa, P. A., Scifo, P., Mainardi, L., & Cerveri, P. (2025). Optimized AI-based neural decoding from BOLD fMRI signal for analyzing visual and semantic ROIs in the human visual system. *Journal of Neural Engineering*, *22*(4), 046048.

Nocera, G., & Pecco, N. (2025). Editorial for “Evaluating Measurement Stability in Glioblastomas Using Magnetic Resonance Elastography: Repeatability and Interobserver Agreement”. *Journal of Magnetic Resonance Imaging*.

Della Rosa, Pasquale Anthony, et al. "The Neurodevelopmental Dynamics of Multilingual Experience During Childhood: A Longitudinal Behavioral, Structural, and Functional MRI Study." *Brain Sciences* 15.1 (2025): 54.

Canini, Matteo, et al. "Functional connectivity markers of prematurity at birth predict neurodevelopmental outcomes at 6, 12, 24, and 36 months." *International Journal of Behavioral Development* (2025): 01650254241312136.

Miglioli, Cesare, et al. "The maternal-fetal neurodevelopmental groundings of preterm birth risk." Heliyon 10.7 (2024).

Canini, Matteo, et al. "Maternal anxiety-driven modulation of fetal limbic connectivity designs a backbone linking neonatal brain functional topology to socio-emotional development in early childhood." Journal of Neuroscience Research 101.9 (2023): 1484-1503.

Vola, Elena A., et al. "Complete agenesis of corpus callosum and unilateral cortical formation anomalies detected on fetal MR imaging: a phenotype strongly associated with the male fetuses." European radiology 33.3 (2023): 2258-2265.

Pecco, Nicolò, et al. "RS-FetMRI: a MATLAB-SPM based tool for pre-processing fetal resting-state fMRI data." Neuroinformatics20.4 (2022): 1137-1154.

Pecco, Nicolò, et al. "Optimizing Performance of Transformer-based Models for Fetal Brain MR Image Segmentation." Radiology: Artificial Intelligence 6.6 (2024): e230229.

Bailo, Michele, et al. "Decoding the heterogeneity of malignant gliomas by PET and MRI for spatial habitat analysis of hypoxia, perfusion, and diffusion imaging: a preliminary study." Frontiers in Neuroscience 16 (2022): 885291.

Sciortino, Tommaso, et al. "Raman spectroscopy and machine learning for IDH genotyping of unprocessed glioma biopsies." Cancers 13.16 (2021): 4196.

ABSTRACTS

Lorenzo Veronese et al., Evaluating Semantic Brain Regions Contribution to Visual Neural Decoding Performance on Different Classes of Stimuli, 20 th conference on Computational Intelligence methods for Bioinformatics and Biostatistics , Milano, Italy, 10 – 12 September 2025.

Alessia Lindemann et al., Generative Adversarial Networks for MRI images normalization: a multicentric study on gliomas characterization via Radiomics analysis, EuSoMII Annual Meeting 2025, Heraklion, Crete, 10-11 October 2025.

Tian Yuan, et al., A Computational Framework for Mechanically Controlled Brain Drug Delivery, 9th European Congress on Computational Methods in Applied Sciences and Engineering - ECCOMAS, Lisbon, Portugal, 3-7 June 2024.

Nocera, Gianluca et al., Validazione istopatologica di un approccio integrato di imaging di Diffusione RM e PET con metionina per la caratterizzazione in vivo della cellularità tumorale, VII Congresso Nazionale AINR Neuroradiologia Funzionale, Torino, Italy, 16-17 October 2024, Format: Oral presentation

Pecco, Nicolò, et al., Confronto tra modelli HD-GLIO e Swin-transformer per la segmentazione automatica dei gliomi: valutazione multi-osservatore, VII Congresso Nazionale AINR Neuroradiologia Funzionale, Torino, Italy, 16-17 October 2024, Format: Oral presentation

Nocera, Gianluca et al., Determinazione in vivo della cellularità tumorale tramite l'utilizzo combinato di diffusione e PET metabolica con metionina, XXVII Congresso Nazionale e Corso Residenziale AINO, 5-7 December 2024, Florence Italy, Format: Oral communication

Pecco, Nicolò, et al., Swin Transformer vs. state-of-the-art CNN for Glioma Segmentation: a comparative study, ESMRMB 40th annual scientific meeting, Barcellona, Spain, 2-5 October 2024, Format: Poster communication

Pecco, Nicolò, et al., Glioma Segmentation in PET/MRI studies: a preliminary comparative study between Swin Transformer and state-of-the-art CNN models, 10th Conference on PET, SPECT, and MR Multimodal Technologies, Isola D'Elba, Italy, 19-23 May 2024, Format: Oral communication

Nocera, Gianluca et al., Imaging tumor habitats with PET-MRI HYPERDIrect maps to decode the spatial heterogeneity of malignant gliomas, 2024 ISMRM & ISMRT Annual Meeting & Exhibition, Singapore, 4-9 May 2024, Format: Poster communication

Pecco, Nicolò, et al., Optimizing performance of transformer-based models for fetal brain MR image segmentation, San Raffaele Scientific Retreat, Baveno, Italy, 17-20 April 2024, Format: Poster communication.

Pecco, Nicolò, et al., Swin Transformer vs. state-of-the-art CNN for Glioma Segmentation: a comparative study, XV Congresso Nazionale AIRMM, Padova, Italy, 15-17 April 2024, Format: Oral communication

Cavoretto, I.,P., et al., Prenatal Identification Of Neurodevelopmental Markers In Fetuses With Major Congenital Heart Defects With A Novel Method Based Upon A Combination Of Functional MRI And Neurosonography, XVI World Congress of Perinatal Medicine WCPM, 7-10 May 2023, Milan, Italy, Format: communication

Nocera, G, et al., Decoding Malignant Glioma Heterogeneity by Habitat Analysis of HYpoxia, PERfusion and Diffusion Imaging: Preliminary Results of the HYPERDIrect Study. EANS congress, Barcelona, Spain, 24-28 September 2023.

Pecco, Nicolò, et al., Evaluation of UNETR and Swin UNETR for Fetal Brain MR Image, Segmentation: Impact of Pre-trained Weights, Dataset Size, Input Size, and Affine Pre-training Task, XIV Congresso Nazionale AIRMM, 12-14 Settembre 2023, Palermo, Italy, Format: Poster communication, Awards: Best-Poster in Application Neuro

Tiberio, P., et al., Determination of isocitrate dehydrogenase (idh) status in brain

gliomas using edited in vivo magnetic resonance spectroscopy (mrs): a clinical feasibility study, 12th AIFM National Congress, 8-11 June 2023, Florence Italy, Format: Oral communication.

Pecco, Nicolò, et al., Decoding the Heterogeneity of Malignant Gliomas by combined MRI and PET acquisition for Spatial Habitat Analysis of Hypoxia, Perfusion, and Diffusion Imaging: A Preliminary Study, XIII Congresso Internazionale AIRMM, Pisa, Italy, 24 November 2022, Format: Oral communication

Buongiovanni, G, et al., 'Quantitative assessment of Diffusion Kurtosis Imaging in Brain Gliomas: Comparison of Clinical and Research Software', XI Congresso Nazionale AIRMM, *10-11 December 2020, virtuale*, Format: Digital communication

SCINFIFIC ADVISOR FOR THESIS PROJECTS

Scientific Advisor for deep learning and machine learning model set up and data analyses for Residency and Master theses in Medicine and Surgery and Engineering.

Medical Residency in Gynaecology and Obstetrics:
Thesis Title: 'In-utero neurodevelopment of fetuses with different preterm birth phenotypes'.
Thesis Title: 'Neurodevelopment assessment in fetuses with congenital heart disease with a novel combined method based upon us and MRI: A cohort study'.

Faculty of Medicine and Surgery - Degree Course in International MD Program:
Thesis Title: 'Near-infrared spectroscopy (NIRS) analysis in at risk neonates'.
Thesis Title: 'Neonatal cerebral oxygenation monitoring via near-infrared spectroscopy in the first 24 hours of life: The impact of hypoglycemia on cerebral autoregulation'.
Thesis Title: 'Determination of Isocitrate Dehydrogenase (IDH) Status in Brain Gliomas Using Edited in Vivo Magnetic Resonance Spectroscopy (MRS): A Clinical Feasibility Study'.

Faculty of Medicine and Surgery:
Thesis Title: 'Monitoraggio NIRS in neonati manifestanti ipoglicemia nelle prime 24-48 ore di vita'.
Thesis Title: 'Quantitative assessment of diffusion kurtosis imaging in brain glioma: comparison of clinical and research software'.

Faculty of Engineering:
Thesis Title: 'Visual stimulus reconstruction from BOLD fMRI signal using generative AI'