

# MARCO RIVA

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## *Curriculum vitae et studiorum*

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### PERSONAL INFORMATION

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Date of Birth: January 23<sup>rd</sup>, 1983  
Place of Birth: Lecco (LC), Italy  
Citizenship: Italian

Mob: +39.335.60.49.059  
Email: [mriva.eu@gmail.com](mailto:mriva.eu@gmail.com); [marco.riva@hunimed.eu](mailto:marco.riva@hunimed.eu)

### EDUCATION

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- 1997 - 2002** High School at Liceo Classico Collegio S. Carlo, Milan, Italy  
Graduated with 100/100 with honors
- 2002 - 2008** School of Medicine at Università Vita-Salute San Raffaele, Milan, Italy  
Graduated with 110/110 with honors and faculty honor mention  
Thesis: Neurosurgical treatment of craniopharyngioma in adults and children:  
early and long-term results in a large clinical series.
- 2009 - 2015** Neurosurgery Residency Program, Università degli Studi di Milano, Milan, Italy  
(Accredited by the JRAAC of the European Association of the Neurosurgical Societies)
- Program Year 1-2-3*  
Unit of Neurosurgery, Fondazione IRCCS Cà Grande H Maggiore Policlinico,  
Milan, Italy. Director: Prof. S.M. Gaini. Mentor: Prof. L. Bello
- Program Year 4-5*  
Humanitas Research Hospital, Rozzano (MI) Italy  
Unit of Neurosurgery; Director: Dr. M. Fornari.  
Unit of Oncological Neurosurgery; Director: Prof. L. Bello
- Program Year 6*  
Visiting Scholar, Department of Neurological Surgery, University California San  
Francisco, CA, USA. Director: Prof. M. Berger. Mentor: Dr. E.F. Chang
- Thesis: Disentangling syntax in the brain. Functional organization and  
structural connectivity revealed by intra-operative stimulation mapping  
and probabilistic tractography. Mark: 70/70 with honors

## WORK EXPERIENCE

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2023-04-11 - to date	<b>Associate Professor</b> (06/E3 MED/27) <b>Humanitas University</b> , Pieve Emanuele, Italy
2021-10-15 - 2023-04-10	<b>Assistant Professor</b> (RTD type B, 06/E3 MED/27) <b>Humanitas University</b> , Pieve Emanuele, Italy
2021-10-15 - to date	<b>Consultant Neurosurgeon</b> (Aiuto) <b>IRCCS Humanitas Research Hospital</b> , Rozzano (MI), Italy
2021-10-01 - to date	<b>Clinical Advisor</b> <b>HEMERA</b> ( <a href="https://hemerapharma.com/">https://hemerapharma.com/</a> )
2020-09-30 to date	<b>Member, Educational Committee</b> <b>European Association of Neuro-Oncology</b> (EANO)
2013 - 2022	<b>Member</b> , Board of Directors Genextra S.p.A.
2017-04-01 to 2021-09-30	<b>Assistant Professor</b> (RTD type A, 06/E3 MED/27) <b>Università degli Studi di Milano, Milan, Italy</b> Dept. of Medical Biotechnology and Translational Medicine
2020-09-01 to 2021-09-30	<b>Consultant Neurosurgeon</b> (Dirigente Medico I Livello) <b>IRCCS Istituto Ortopedico Galeazzi</b> , Milan, Italy Unit of Neurosurgery
2020-01-15 to 08-31	<b>Consultant Neurosurgeon</b> (Dirigente Medico I Livello) <b>Fondazione IRCCS Ca' Granda</b> <b>Ospedale Maggiore Policlinico</b> Milan, Italy Unit of Neurosurgery
2015-07-17 - 2019-12-31	<b>Assistant Neurosurgeon</b> (Dirigente Medico I Livello) <b>Humanitas Research Hospital, Rozzano (MI) Italy</b> Unit of Oncological Neurosurgery; Director: Prof. L. Bello Unit of Neurosurgery; Director: Dr. M. Fornari.
2016-04-01 – 2018-3-31	<b>Scientific Consultant</b> , Brainlab AG (München, Germany)
2011 – 2015	<b>Visiting Scholar, IUSS</b> (Institute for Advanced Study) <b>Pavia, Italy.</b> Center for Neurolinguistics and Theoretical Syntax (Ne.T.S.) <a href="http://www.nets.iusspavia.it">www.nets.iusspavia.it</a> ; Director: Prof. A. Moro

## LICENSURES

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2008	Italian State License for the practice of Medicine and Surgery
2009	Foundations of Medicine, National Board of Medical Examiners (NBME)

## CERTIFICATIONS

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2008,2018	BLS-D certification, Milan, ITALY
2010	ATLS certification, Milan, ITALY

## CLINICAL ACTIVITY

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The clinico-surgical activity has been focused on the diagnosis, treatment and follow-up of subjects affected by intra- and extra-axial cranial lesions.

The surgical activity has been performed with the aid of neurophysiological and neuropsychological techniques for monitoring and mapping of the functions of the nervous system, such as the motor-sensory pathways, language and speech, superior cognitive functions, visual pathways, under several anesthesia regimens (asleep, awake-asleep, asleep-awake-asleep). Neuronavigation systems (combining CT, MRI and PET imaging) and intra-operative imaging techniques (3D fluoroscopy, CT, ultrasound) were also regularly deployed.

The clinical activity has been performed in both elective and emergent regimens, thus gaining experience on also the management of traumatic lesions and neurosurgical emergencies.

The clinico-surgical activity has also been committed to the main spine pathologies, such as the degenerative, traumatic and tumor disorders.

The clinical practice has finally been built upon weekly multidisciplinary boards, with neuro-oncologists, radiation therapists, neuroradiologists, neurologists, rehabilitation therapists, opthalmologists, neuropsychologists, neuropathologists.

### **Overall neurosurgical experience (update 03-2023)**

- first operator in 800 neurosurgical procedures
- Involved in 3060 neurosurgical procedures
- *main fields of expertise*: oncological neurosurgery, awake surgery, brain mapping and monitoring procedures, stereotactic procedures, robotic surgery, degenerative spine disorders, traumatic head and spine injuries, cerebrospinal fluid disorders.

## RESEARCH ACTIVITY

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<b>Total Citations:</b>	2335	<i>Scopus</i>
<b>h-index:</b>	28	<i>Scopus</i>
<b>ORCID:</b>	<a href="http://orcid.org/0000-0003-4643-6451">http://orcid.org/0000-0003-4643-6451</a>	
<b>Scopus Author ID:</b>	57208478311	
<b>ORCID:</b>	0000-0003-4643-6451	
<b>Web of Science ResearcherID</b>	AAC-1357-2019	

### **2003: DiBit, San Raffaele Scientific Institute, Milan, Italy**

Summerstudentship at the Protein transport and Secretion Unit.

*Project*: to investigate cystine involvement in oxidative protein folding.

*Director*: Prof. R. Sitia; *Mentor*: Dr. S. Nerini-Molteni

### **2004, 2005, 2006: National Institute of Neurological Disorders and Stroke (NINDS), National Institutes of Health (NIH), Bethesda, MD, USA.**

Summerstudentship at the Clinical Disease Section, Neuroimmunology Branch (NIB)

*Project*: the use of conventional and advanced high-field MR imaging to characterize the cortical and subcortical lesion load and disease pathology in multiple sclerosis.

*Director*: Dr. H.F. McFarland; *Mentor*: Dr. F. Bagnato

### **2014 – 2015: University of California San Francisco, CA, USA**

Research Scholar at the Department of Neurological Surgery (see above PGY-6).

The research activity has been deployed to the study of the pathogenesis, advanced diagnostic methods and treatments of the disorders of the central nervous system (CNS).

In particular:

1. advanced imaging to characterize auto-immune and neoplastic diseases of the CNS;
2. advanced imaging to characterize the morpho-functional anatomy of the CNS;
3. development of intra-operative imaging techniques for both cranial and spinal applications;
4. study of the neural substrates of the superior cognitive functions;
5. development of intra-operative neurophysiological monitoring and mapping techniques;
6. characterization of prognostic factors for clinical, surgical and neurosurgical outcome
7. development of novel therapeutic approaches for neuro-oncology;
8. development of robotic and mechatronic applications in neurosurgery;
9. convection-enhanced delivery (CED);
10. identification and characterization of neural precursors.

The research activity is been deployed as investigator in the following international studies:

- i) Active Constraints Technologies for Ill-defined or Volatile Environments (**ACTIVE**, FP7-ICT-2009-6-270460);
- ii) An Enhanced Delivery Ecosystem for Neurosurgery in 2020 (**EDEN2020**; Horizon 2020 no 688279).

#### **Ad hoc reviewer**

Frontiers in Oncology (*Editor*)  
Frontiers in Neurology (*Editor*)

World Neurosurgery  
World Journal of Surgical Oncology  
Neurosurgical Review  
Neurosurgical Focus  
European Journal of Nuclear Medicine and Molecular Imaging (EJNMMI) Research  
Operative Neurosurgery  
Interdisciplinary Neurosurgery  
BMC Neurology  
J Neuro-Oncology  
EBioMedicine (Part of The Lancet Discovery Science)  
J Raman Spectroscopy

## **ACADEMIC AND TEACHING ACTIVITY**

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### Undergraduate and Master Degree Programs

- 2022-10 to date** School of Medicine  
MEDTEC School  
Nursing, Integrated Clinics  
*Humanitas University*
- 2015-10 to 2021-09** Supervisor and co-supervisor for Medical Doctor Degree discussion  
*Università degli Studi di Milano*
- 2017-04 to 2021-09** School of Medicine, Course of Neurology  
*Università degli Studi di Milano*
- 2018 - 2019** International Medical School, Integrated course of  
NEUROBIOLOGY, HUMAN BEHAVIOUR AND CLINICAL  
NEUROSCIENCE, Neurosurgery module.  
*Università degli Studi di Milano*
- 2019-05-06 to date** Supervisor, Thesis  
*IUSS (Institute for Advanced Study) Pavia, Italy.*
- 2019 to 2021-09** School of Medicine, Degree course of Physiotherapy, Course of  
Neuro-musculoskeletal disorders  
*Università degli Studi di Milano*

### Post-graduate Programs

- 2022-10 to date** Neurosurgery Residency Program  
Member, Board of the Neurosurgery Residency Program  
*Humanitas University*
- 2022-2023** Faculty, Theoretical and experimental linguistics  
Doctoral Programme Ciclo XXXVIII  
*I.U.S.S. - Istituto Universitario di Studi Superiori - PAVIA*
- 2019-04** Reviewer  
PhD Program in Neuroscience, Psychological and Psychiatric  
Sciences and Movement Sciences  
*Università degli Studi di Verona*
- 2019-2020 to 2021-09** Teaching, Residency Program in Child Neuropsychiatry  
*Università degli Studi di Milano*
- 2017-04-01 to 2021-09** Teaching, PGY 1-3 Residency Program in Neurosurgery  
*Università degli Studi di Milano*
- 2017-04-01 to 2021-09** Member, Board of the Residency Program in Neurosurgery  
*Università degli Studi di Milano*

## Review activity

- 2018-03 to date** Independent Scientific Expert  
Register of Expert Peer-Reviewers for Italian Scientific Evaluation (REPRISE)
- 2017-11-09** Italian Ministry of Education, University, and Research (MIUR)  
Reviewer, Post-doc position evaluation  
Università degli Studi di Milano

## **GRANTS and AWARDS**

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### **2006**

Travel Grant Award acknowledging the quality of the scientific contribution.  
*The Congress of the European Committee for Treatment and Research in Multiple Sclerosis, 2006, Madrid, Spain.*

### **2011-2015**

Partner member, Active Constraints Technologies for Ill-defined or Volatile Environments (FP7-ICT-2009-6-270460; [www.active-fp7.eu](http://www.active-fp7.eu)).

### **2013**

Fellowship for Abroad of the Fondazione Italiana per la Ricerca sul Cancro (FIRC)  
([www.inviaggioconlaricerca.airc.it/marco-riva/](http://www.inviaggioconlaricerca.airc.it/marco-riva/))

### **2016 - 2021**

Partner, An Enhanced Delivery Ecosystem for Neurosurgery in 2020 (EDEN2020; Horizon 2020 no 688279; [www.eden2020.eu](http://www.eden2020.eu))

### **2018**

Best Oral Presentation Award  
LVIII National Meeting, Società dei Neurologi Neurochirurghi Neuroradiologi Ospedalieri  
Riccione (RM), Italy

### **2018**

Piano Sostegno alla Ricerca anno 2018 - Linea 2 - AZIONE A, Progetti giovani Ricercatori  
Dep. of Medical Biotechnologies and Translational Medicine, Università degli Studi di Milano  
Marco Riva (Principal Investigator) and Francesco Bifari  
*Adult human progenitors in meninges: identification and functional characterization*

### **2019**

Telethon Grant Project GGP19250  
Francesco Bifari, MD PhD, Principal Investigator  
M. Riva (Co-investigator)  
Project title: *Meninges as an overlooked pharmacological target for Globoid Cell Leukodystrophy*

### **2021**

Premio Carla Russo (III edizione). Best researcher under 40 in neuro-oncology

### **2022**

Premio Fondazione Associazione Italiana Neurochirurgia Oncologica

### **2022 - to date**

Co-P.I. Bando Ministero Salute PNRR 2022 (PNRR-MAD-2022-12376623), Project Title:

Title: *Quantitative MRI of the spinal cord in cervical myelopathy: assessment of microstructural damage for outcome improvement*

### **2022 - to date**

Erasmus+ Program. KA220-HED - Cooperation partnerships in higher education. Project Title: *Supporting medical students in making informed decisions for their neurosurgery residency pathways* (Neurodecision; <https://neurodecision.eu/>)

### **PEER-REVIEWED PUBLICATIONS**

Author and co-author of 105+ peer-reviewed publications.

### **BOOK CHAPTERS**

Author and co-author of 8 book chapters  
The detailed list is available upon request

### **CONFERENCE PRESENTATIONS & LECTURES**

Author and co-author of 30 conference presentations (available upon request as attachment #2).

In particular, speaker as invited lecturer and for oral presentation at both national and international meetings such as *The Low-Grade Glioma Network Meeting* (2011, 2013), *Deutsche Gesellschaft für Neurochirurgie* (DGNC,2012), the *Swiss-Italian Neuro-Oncology Meetings* (2013, 2017), *The EANO Meetings* (2012, 2014, 2021), *The ISMRM Italian Chapter* (2016), *The American Association of Neurological Surgeons Annual Scientific Meeting*, (2017), *The CNS meeting* (2013), *The World Federation of Neurosurgical Societies (WFNS) Symposia* (2018), the *International Conference on Intelligent Robots and Systems* (2018), the *European Association of Neurosurgical Societies* (2018), and *The Sinch Meetings*.

### **MAIN COURSES ATTENDANCE**

#### **2006**

- Monitoring therapeutic interventions in Multiple Sclerosis, November 10, Milan, Italy. President: prof. Comi G
- Emergencies in Neurology: from diagnosis to therapy, November 30 – December 1, Milan, Italy. President: prof Comi G.

#### **2007**

- Neuroradiology at San Raffaele. An Anniversary. 20 years of progress for the future. October 20th, Milan, Italy. President: Prof. G. Scotti.

#### **2010**

- MITO Spine Educational Course. IRCCS H Galeazzi, Milan, Italy. Director: Prof. A. Ducati
- European Society for Magnetic Resonance in Medicine and Biology (ESMRMB) School of MRI: Clinical fMRI & DTI – Theory and Practice, Milan, Italy. Director. Sunaert S.

#### **2011**

- International Society for Magnetic Resonance in Medicine (ISMRM) Educational Workshop: Mapping Functional Networks for Brain Surgery. Milan, Italy. Director: Goldstein R. On site Organizer: Bizzi A.
- Seventh National Course: Stages in Neuro-Oncology. Turin, Italy. Directors: R. Soffietti and R. Rudà.
- Third congress of the International Society of Intra-Operative Neurophysiology (ISIN). Barcelona, Spain. Congress President: I. Fernàndenz-Conejero.

## 2012

- EANS Training Course in Neurosurgery on TUMOR. Pecs, Hungary. Chairman: N. Akalan.
- ISIN Educational Course – Brain. Lazise (VR). Direttore: Prof. F. Sala

## 2013

- EANS Training Course in Neurosurgery on HEAD INJURY AND FUNCTIONAL NEUROSURGERY. Krakow, Poland. Chairman: N. Akalan.
- Medtronic Midas Rex Hands-On workshop, Krakow 2013.

## 2014

- EANS Training Course in Neurosurgery on SPINE AND PERIPHERAL NERVOUS SYSTEM. Barcelona, Spain. Chairman: N. Akalan.

## 2017

- Animal Testing Procedures for Science, Istituto di Ricerche Farmacologiche Mario Negri, Milan, Italy.

## PERSONAL SKILLS AND COMPETENCES

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Mother tongue:

**Italian**

Other language:

**English**

*Proficient understanding, fluent speaking and proper writing.*

*\*i) Comprehension C2. ii) Speaking C2. Iii) Writing C2*

**German**

*Basic knowledge.*

*\*i) Comprehension A1. ii) Speaking A1. Iii) Writing A1*

*\* According to the European Community criteria*

IT skills:

*Operative systems: MS Windows, Mac OS X, Linux Red Hat*

*Softwares: MS Office suite, iWork, MEDx 3.43, Freesurfer v 0.9.*

*Webdesigning (iWeb 09), SAS studio*

### **Medical Softwares and IT medical applications**

Brainsuite Net Platform BrainLab

Brainlab iPlan Cranial and Spine application

Brainlab VarioGuide System for frameless biopsy

Brainlab AIRO system for intra-operative CT scan

Stealth System Medtronic S7 + S8

O-Arm Spine Application Package

Aloka Alpha-Pro for intraoperative Ultrasound in brain surgery

BK Medical Analogic for for intraoperative Ultrasound in brain surgery

ImFusion (imfusion.de)



## **OTHERS**

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### **2000, September 1<sup>st</sup> to December 18<sup>th</sup>**

Student at St. Fintan's High School in Dublin, EIRE, to follow an Irish Secondary School Integration Programme.

### **2004**

Invited speaker at the workshop held at the Collegio San Carlo, Milan organized by prof. Diegoli M. and prof Canino M. and entitled: In vitro fertilization: insights from different perspectives.

### **2005**

- NMRi Safety Course at the NMR Centre of the Clinical Center, NIH, Bethesda, MD, USA. Instructor: Hill R.
- Health Care Provider recognized by the American Heart Association.

### **2006**

- Invited speaker at the Elective Classes of the course "English lectures with specialists" directed by Prof. John M. at San Raffaele University, School of Medicine.

### **2011**

- Ski Mountaineering Course (SA-1) of the Italian Alpine Club (Section of Milan)

### **2012**

- Selected for the EANS Trainee Lectures at the EANS Training Course in Pecs, Hungary, for the work on "The combined use of bipolar and monopolar stimulation and DTI-FT during surgical removal of lesione involving motor areas or pathways"
- Invited speaker at the meeting "Music and brain. Mozart and the Tourette's syndrome" with a lecture entitled "The Principles of the fMRI" at the 6<sup>th</sup> edition of the MITO SettembreMusica Festival held in Milan, on September 11<sup>th</sup>. Chairmen: Dott. F. Micheli, Prof. G. Broggi.
- Instructor at the 5<sup>th</sup> Optimized Resection of Gliomas Course, September 20<sup>th</sup>-22<sup>nd</sup>, Dusseldorf, Germany. Directors: Prof. Dr. med. M. Sabel and Prof. Dr. A. Szelényi.

### **2013**

- Invited speaker at the meeting "Oltre la musicoterapia. Curare il disagio" with a lecture entitled "The colours of the brain" at the 7<sup>th</sup> edition of the MITO SettembreMusica Festival held in Milan, on September 14<sup>th</sup>. Chairmen: Dott. F. Micheli, Prof. G. Broggi.

### **2014**

- Invited speaker at the meeting "Brain & Music: does the neuron play jazz?" with a lecture entitled "Improvisation and creativity: a brain session" co-authored with Prof. G. Scotti at the 8<sup>th</sup> edition of the MITO SettembreMusica Festival held in Milan, on September 20<sup>th</sup>. Chairmen: Dott. F. Micheli, Prof. G. Broggi.

### **2017**

- invited at the radio broadcasting program DriveTime (RaiRadio 2; <http://www.rai.it/dl/portaleRadio/media/ContentItem-3e2ec89b-77af-43ac-8dac-285af6aaa108.html#>) to talk about the brain and awake surgery.

### **2020**

- invited at the radio broadcasting program Life Style (Radiorizzonti, [www.radiorizzonti.org](http://www.radiorizzonti.org)) to talk about 5G Technology and Health.

### **2021, 2022, 2023**

- Chair, Scientific Committee BAM Forum - Dialoghi per l'Ambiente (BAM Milano - Fondazione R. Catella - Fondazione Corriere della Sera), Milano (<https://bam.milano.it/eventi/bam-forum-dialoghi-sullambiente/>)

Marco Riva

