

# Curriculum Vitae

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## Informazioni personali

Nome e Cognome: Nivedita Agarwal, MD  
Ruolo attuale: Neuroradiologa  
Residenza: '  
E-mail: ]  
ORCID ID: |

## Occupazione attuale

Ottobre 2021 – presente  
Responsabile Neuroradiologia e Servizi di Radiologia,  
Istituto Scientifico IRCCS “Eugenio Medea”, Lecco  
  
Settembre 2020 – presente  
Dottoranda in Neuroscienze Cliniche,  
Faculty of Medicine, University of Southampton (UK)

## Esperienze lavorative precedenti

2010 – 2013: Neuroradiologa, Ospedale S. Chiara, Trento  
2013 – 2021: Neuroradiologa, Ospedale S. Maria del Carmine, Rovereto (APSS Trento)  
2011 – 2021: Direttore Medico per la Sicurezza, Laboratorio di Neuroimaging 4T, CIMeC, Università di Trento  
2011 – 2022: Adjunct Faculty, Neuroradiologia, University of Utah, Salt Lake City (USA)  
2019: Visiting Academic, Clinical and Experimental Sciences, University of Southampton (UK)

## Formazione e titoli di studio

1991 – 1993: Diploma di scuola superiore (Advanced level qualification), St. George’s International School, Roma  
1993 – 1999: Laurea in Medicina e Chirurgia, Università Cattolica del Sacro Cuore, Roma

2000 – 2002: Specializzazione in Neurologia, IRCCS Oasi Maria SS., Troina (EN)  
2002 – 2005: Specializzazione in Neurologia, Università di Udine, Udine  
- Tesi: Stenting della carotide in stenosi asintomatiche ad alto grado: follow-up a lungo termine  
2005 – 2009: Specializzazione in Radiologia, Università di Udine, Udine  
- Tesi: Somministrazione a breve termine di uridina e precursori di fosfolipidi cerebrali: studio 31P-MRS a 4T  
2008 – 2009: Ricerca, McLean Hospital, Harvard Medical School, Boston (USA)  
2009 – 2010: Ricerca, University of Utah, Salt Lake City (USA)  
2009 – 2010: Observer, Neuroradiologia, University of Utah, Salt Lake City (USA)

## **Abilitazioni e certificazioni**

2014: European Certificate of Neuroradiology (European Board of Neuroradiology)  
2019: Master in Management in Medicina (Provincia Autonoma di Trento)  
2022: International Master in Developing Trusted Leaders  
2022: Corso Europeo di Neuroradiologia Pediatrica

## **Premi e riconoscimenti**

2003-2006: Young Scientific Investigator Travel Award, Società Neurologica Italiana  
2004: Young Scientific Investigator Travel Award, Società Neurologica Europea  
2017: II Premio Miglior Poster Scientifico, International Society for Neurovascular Diseases, Italia

## **Finanziamenti e Grant**

2022: Research grant 5x1000 – Glymphatic System (Principal Investigator)  
2023: Research grant 5x1000 – I-CLEANED (Principal Investigator)

## **Appartenenza a società scientifiche**

Dal 2011: European Society of Neuroradiology (ESNR)  
2012 – 2016: American Society of Neuroradiology (ASNR)  
Dal 2012: Associazione Italiana di Neuroradiologia (AINR)  
Dal 2016: International Society of Magnetic Resonance in Medicine (ISMRM)

Dal 2017: European College of Radiology (ECR)  
Dal 2017: Società Italiana di Radiologia Medica (SIRM)  
Dal 2019: Società Neurologia, Neurochirurgia e Neuroradiologia Ospedaliera (SNO)  
2020 – 2022: European Society of Magnetic Resonance in Medicine  
2021 – 2023: Chair, Study Group “Imaging Neurofluids”, ISMRM  
Dal 2021: Segretario, Società Neuroscienze Ospedaliera (SNO)

## Ruoli editoriali

Dal settembre 2023: Deputy Editor, Journal of Magnetic Resonance Imaging  
Dal settembre 2023: Review Editor, Frontiers in Neuroscience  
Da ottobre 2023: Editor, Imaging Neurofluids, Neuroimaging Clinics of North America

## Attività scientifica, conferenze e didattica

- Relatrice a numerosi congressi nazionali e internazionali (ISMRM, ISNVD, SIRM, AINR, AIMS, ecc.)
- Organizzatrice di corsi di formazione e workshop (serie “Anatomy meets Function”, Trento e Rovereto)
- Relazioni a convegni internazionali in Europa, Asia e USA (tema: neurofluidi, imaging avanzato, neuroradiologia pediatrica)
- Attività didattica in Italia (Università di Verona, Trento, Politecnico di Milano) e all'estero (University of Utah, Johns Hopkins University)
- Supervisione di numerose tesi e progetti di ricerca in neuroscienze cliniche e imaging cerebrale

## Pubblicazioni selezionate

Autrice di oltre 40 articoli scientifici peer-reviewed, capitoli di libri e volumi internazionali.  
Monografia: “Neuroimaging: Anatomy meets Function”, Springer International, 2017.

Curatrice del volume “Imaging Neurofluids”, Neuroimaging Clinics of North America,

1. Ringstad, Geir, Eide, Per Kristian, Naganawa, Shinji, **Agarwal, Nivedita**. Gadolinium-Based Imaging and the Study of Neurofluid Dynamics. Neuroimaging Clinics of North America March 2025
2. **Nivedita Agarwal** A Clinical Primer on the Anatomy and Physiology of Neurofluids in the Human. Neuroimaging Clinics of North America March 2025
3. **Nivedita Agarwal**, W. Klein, Ruth O’Turra. MR Imaging of Neurofluids in the Developing Brain. Neuroimaging Clinics of North America March 2025

4. Minghetti, Sara, Lazzerotti, Alessandra, Sala, Debora, Vimercati, Chiara, Giudici, Sofia, Florio, Santa, Formica, Francesca, Zambrano, Stefania, **Agarwal, Nivedita**, Peruzzi, Cinzia. Neurotoxicity and PRES after severe citalopram intoxication in a 12-months-old baby. *Emergency Care Journal* 2024;1-13
5. **Nivedita Agarwal**, Giulia Frigerio, Gloria Rizzato, Tommaso Ciceri, Elisa Mani, Fabiola Lanteri, Massimo Molteni, Roxana O. Carare, Letizia Losa, Denis Peruzzo (2024). Parasagittal dural volume correlates with cerebrospinal fluid volume and developmental delay in children with autism spectrum disorder. *Communications Medicine*, 2024;4 (191) doi: <https://doi.org/10.1038/s43856-024-00622-8>
6. **Nivedita Agarwal**, Audrey Fan, Xiaoqi Huang, Seena Dehkharghani, and Anja van der Kolk. ISMRM Clinical Focus Meeting 2023: "Imaging the Fire in the Brain". *Journal of Magnetic Resonance Imaging*, 2024; 1-17.
7. Letizia Losa, D. Peruzzo, S. Galbiati, F. Locatelli, **Nivedita Agarwal**. Enhancing T1 signal of normal-appearing white matter with divided subtracted inversion recovery: A pilot study in mild traumatic brain injury. *NMR in Biomedicine* April 2024
8. Peruzzo, Denis, Ciceri, Tommaso, Mascheretti, Sara, Lampis, Valentina, Arrigoni, Filippo, **Agarwal, Nivedita**, Giubergia, Alice, Villa, Filippo Maria, Crippa, Alessandro, Nobile, Maria, Mani, Elisa, Russo, Annamaria, D'Angelo, Maria Grazia. Brain Alteration Patterns in Children with Duchenne Muscular Dystrophy: A Machine Learning Approach to Magnetic Resonance Imaging. *Journal of Neuromuscular Diseases*. 2024
9. Ciceri, Tommaso, Casartelli, Luca, Montano, Florian, Conte, Stefania, Squarcina, Letizia, Bertoldo, Alessandra, **Agarwal, Nivedita**, Brambilla, Paolo, Peruzzo, Denis. Fetal brain MRI atlases and datasets: A review. *Neuroimage*, 2024 (292)
10. Ciceri T, De Luca A, **Agarwal N**, Arrigoni F, Peruzzo D. A framework for optimizing the acquisition protocol multishell diffusion-weighted imaging for multimodel assessment. *NMR Biomed.* 2024 Mar 23:e5141. doi: 10.1002/nbm.5141. 2024;e5141
11. Eleonora Maggioni, Alessandro Pignoni, Elisa Fontana, Giuseppe Delvecchio, Cardina Bonivento, Valentina Bianche, Maddalena Mauri, Monica Bellina, Rossano Girometti, **Nivedita Agarwal**, Maria Nobile and Paolo Brambilla. Right frontal cingulate cortex mediates the effect of prenatal complications on youth internalizing behaviors. *Molecular Psychiatry* 2024: June 2023:1-10
12. Kelly Louise, Brown Christopher, Michalik Daniel, Hawkes Cheryl, Aldrea Roxana, **Agarwal Nivedita**, Salib Rami, Alzetani Aiman, Ethell Douglas, Counts Scott, de Leon Mony, Fossati Silvia. Clearance of interstitial fluid (ISF) and CSF (CLIC) group-part of Vascular Professional Interest Area (PIA), updates in 2022-2023. Cerebrovascular disease and the failure of elimination of Amyloid- $\beta$  from the brain and retina with age and Alzheimer's disease: Opportunities for therapy. *Alzheimer's & Dementia* 2023;12(1): 1-15
13. **Nivedita Agarwal**, Laura D. Lewis, Lydiane Hirschler, Leonardo Rivera Rivera, Shinji Naganawa, Swati Rane Levendovszky, Geir Ringstad, Marijan Klarica, Joanna Wardlaw, Costantino Iadecola, Cheryl Hawkes, Roxana Octavia Carare, Jack Wells, Erik N.T.P. Bakker, Vartan Kurtcuoglu, Lynne Bilston, Maiken Nedergaard, Yuki Mori, Marcus Stoodley, Noam Alperin, Mony de Leon, and Matthias J.P. van Osch. Current Understanding of the Anatomy, Physiology, and Magnetic Resonance Imaging of Neurofluids: Update From the 2022 "ISMRM Imaging Neurofluids Study group" Workshop in Rome, *Journal of Magnetic Resonance Imaging*, 2024; 59(2): 449

14. Emma Tassi, Eleonora Maggioni, Maddalena Mauri, Corrado Fagnani, **Nivedita Agarwal**, Anna Maria Bianchi, Maria A. Stazi, Maria Nobile, Paolo Brambilla. Environmental effects on brain functional networks in a juvenile twin population. *Scientific Reports* 2023 13(1): 3921
15. C. Quattrocchi, **N. Agarwal**, M. Taso and I, Dekkers, Report on the ISMRM - ESMRMB 2022 hot topic debate on the future of gadolinium as a contrast agent. *Magnetic Resonance Materials in Physics, Biology and Medicine*, 2022 35(5):707-710
16. Eleuterio F. Toro, Morena Celant, Qinghui Zhang, Christian Contarino, **Nivedita Agarwal**, Andreas Linninger, Lucas O. Müller. Cerebrospinal fluid dynamics coupled to the global circulation in holistic setting: mathematical models, numerical methods and applications. *International Journal for Numerical Methods in Biomedical Engineering* 2022: 38(1).
17. Lisa Novello, **Nivedita Agarwal**, Sabina Vennarini, Stefano Lorentini, Domenica Zacà, Anna Musano, Ofer Pasternak, Jorge Jovicich. Longitudinal changes in brain diffusion MRI indices during and after proton beam therapy in a child with pilocytic astrocytoma: a case report. *Diagnostics* 2022, 12, 26.
18. Simran Chhugani, **Nivedita Agarwal**, Faraz Sheikh, Florina Borca, Aginor Spanoulis, Ian Galea. Cervical spinal degenerative disease in multiple sclerosis. *European Journal of Neurology* – April 2021
19. Saba, Luca, **Nivedita Agarwal**, Cau Riccardo, Gerosa Clara, Sanfilippo Roberto, Porcu Michele, Montisci Roberto Cerrone Giulia, Qi Yang, Balestrieri Antonella, Lucatelli Pierleone, Politi, Carola, Faa Gavino, Suri, Jasjit S. Review of Imaging biomarkers for the vulnerable carotid plaque. *Journal of Vascular Science* Feb 2021
20. **Nivedita Agarwal** and Roxana O Carare. The cerebral vessels: an overview of anatomy, physiology and role in the drainage of fluids and solutes. *Frontiers in Neurology*. 11:611485, 2021.
21. **Nivedita Agarwal**; Ahmed, Ali Karim; Wiggins, Richard H. III; McCulley, Timothy J.; Kontzialis, Marinos; Macedo, Leonardo L.; Choudhri, Asim F.; Ditta, Lauren C.; Ishii, Masaru ; Gallia, Gary L.; Aygun, Nafi; Blitz, Ari M. Segmental Imaging of the Trochlear Nerve, *Journal of Neuro-Ophthalmology* 2020;00:1–9.
22. Matthew MacGregor Sharp, Satoshi Saito, Abby Keable, Maureen Gatherer, Roxana Aldea, **Nivedita Agarwal**, Julie E. Simpson, Stephen B. Wharton, Roy O. Weller & Roxana O. Carare. Demonstrating a reduced capacity for removal of fluid from cerebral white matter and hypoxia in areas of White Matter Hyperintensity associated with age and dementia. *Acta Neuropathol Commun* 8, 131, 2020
23. Nivedita Agarwal, Rosella Martini, Giovanni Pedrotti, Sabino Della Sala. Unusual lesion in the splenium of the corpus callosum and coronavirus infectious disease-19. *BJR|case reports* 2020 6:3
24. Roxana Carare..., **Nivedita Agarwal** et al. Cerebrovascular disease and the failure of elimination of Amyloid- $\beta$  from the brain and retina with age and Alzheimer's disease. Opportunities for Therapy. *Alzheimer's Dement*. 2020;12:e12053
25. Johan Zelano, Martin Holtkamp, **Nivedita Agarwal**, Simona Lattanzi, Eugen Trinkka, Francesco Brigo. How to diagnose and treat post-stroke seizures and epilepsy. *Seminars in Epileptology, Epileptic Disord* 2020; 22 (3): 252-63.
26. **Agarwal N.** Contarino C., Toro E. Neurofluids: A holistic approach to their physiology, interactive dynamics and clinical implications for neurological diseases. *Veins & Lymphatics*. Volume 8 (3) 2019

27. **Agarwal N.**, Contarino C., Bertazzi L., N. Limbucci, Toro E. F. Intracranial fluid dynamics changes in idiopathic intracranial hypertension: pre and post therapy. *Current Neurovascular Research*, 2018, Vol. 15, 2 (1-9)
28. **Agarwal N.**, L. Lenzi, N. Dorigoni, S. Cozzio, Sabino W Della Sala, Multifaceted progressive neurotuberculosis in a single patient: from miliary tuberculomas to cortical venous infarct. 2018 Jul 12;5(1):20180020
29. N.Schiess, K.Huether, M.Szolics, N.Agarwal, A.W.El-Hatta, S.Sathe. Multiple sclerosis or "inflammatory CADASIL?": Case Report and review of the literature. *Clinical Neurology and Neurosurgery*. 2018 Oct;173:196-199
30. **Agarwal N.**, Aylin Tekes Andrea Poretti, Avner Meoded, Thierry A.G.M. Huisman. Pitfalls in diffusion weighted and diffusion tensor imaging of the pediatric brain. *Neuropediatrics* 2017 Oct;48(5):340-349
31. Franceschi R, **Agarwal N.**, Savona Valentina, Maines Evelina, Bellizzi Maria, Di Palma Annunziata. Persistent torticollis: Think about Grisel's syndrome. *Journal of Pediatric Neuroradiology* 2014. 175-180.
32. Franceschi R, Maines E, Fedrizzi M, Piemontose MR, De Bonis P, **Agarwal N.**, Bellizzi M, Di Palma A. Familial cleidocranial dysplasia misdiagnosed as rickets over three generations. *Pediatric International* 2014 (57) 1003-6.
33. Shprecher, David R; Gannon, Keenan; **Agarwal N.**; Shi, Xianfeng; Anderson, Jeffrey S; Elucidating the nature and mechanism of tic improvement in Tourette syndrome: A pilot study. *Tremor and Other Hyperkinetic Movements*. 2014 (4).
34. Paolo Zanatta, Gianna Maria Toffolo, Elisa Sartori, Anna Bet, Fabrizio Baldanzi, **Agarwal N.**, Eugene Golanov. The human brain pacemaker: Synchronized infra-slow neurovascular coupling in patients undergoing non-pulsatile cardiopulmonary bypass. *NeuroImage* 2013 DOI: 10.1016/j.neuroimage.2013.01.033
35. Port JD and **Agarwal N.** Magnetic resonance spectroscopy and schizophrenia. *JMRI* 2011;34:1251-61.
36. **Agarwal N.** and Renshaw PF. Proton magnetic resonance spectroscopy detectable major neurotransmitters of the brain: their biology and possible clinical applications. *AJNR*. 2012 Apr;33(4):595-602
37. **Agarwal N.**, Young-Hoon Sung, J. Eric Jensen, Grace daCunha, David Harper, Perry F Renshaw. Acute administration of uridine increases brain membrane phospholipid precursors in healthy adults: A 31-Phosphorus Magnetic Resonance Spectroscopy Study at 4T. *Bipolar Disord*. 2010 Dec;12(8):825-33.
38. **Agarwal N.**, Port DJ, Bazzocchi M, Renshaw PF. Update on Magnetic Resonance Imaging in Psychiatric Disorders. *Radiology*. 2010;255(1), 23-41.
39. **Agarwal N.**, Rambaldelli G, Perlini C, Dusi N, Kitis O, Bellani M, Cerini R, Isola M, Versace A, Balestrieri M, Gasparini A, Pozzo Mucelli R, Tansella M, Brambilla P. Microstructural thalamic changes in schizophrenia: a combined anatomical and diffusion weighted MRI study. *J Psych and Neuroscience*. 2008; 33(5): 440-48.
40. **Agarwal N.**, Bellani M, Perlini C, Pambaldelli G, Atzori M, Cerini R, Vecchiato F, Pozzi Mucelli R, Balestrieri M, Tansella M, Brambilla P. Increased fronto-temporal perfusion in bipolar disorder. *J Affect Disord*. 2008 110:106-114.
41. **Agarwal N.**, Como G, Brambilla P, Baiano M, Maieron M, Balestrieri M, Perini L, Zuliani R, Ciano R, Bazzocchi M. Functional magnetic resonance imaging study investigating mechanism of memory suppression in stress-related psychiatric disorders: preliminary results. *European Radiology*. 2008; Suppl 1 (18).

42. Ferri R, Elia M, **Agarwal N**, Lanuzza, Musumeci SA, Pennissi G. The mismatch negativity and the p3a components of the auditory event-related potentials in autistic low-functioning subjects. *Clinical Neurophysiol.* 2003; 114:1671-1680.