

Antonio Di Ieva  
Research Fellow  
Macquarie Medical School  
Performance and Expertise Research Centre  
**Email:** antonio.diieva@mq.edu.au



Antonio Di Ieva  
Research Fellow  
Macquarie Medical School  
Performance and Expertise Research Centre  
**Email:** antonio.diieva@mq.edu.au



## Biography

Professor Di Ieva received his Medical Degree in 2002 and specialisation in Neurosurgery in 2007 in Italy. He was a consultant neurosurgeon in Milan from 2007 to 2009, mainly involved in the treatment of brain and pituitary tumours, working closely with ENT and craniomaxillofacial surgeons, oncologists and radiation oncologists, as well as in the emergency management of neurotrauma. He also worked as a researcher at the Centre for Anatomy and Cell Biology of the Medical University of Vienna, Austria, from 2009 to 2011, where he completed a PhD in Clinical Neurosciences (introducing innovative methods in neuropathology and MRI). He was appointed A/Professor of Neuroanatomy in 2012 and was invited multiple times to teach neurotraumatology and neurosurgery in several countries, including Italy, Austria, Switzerland, Germany, USA, and UAE. Professor Di Ieva completed a 3-year clinical & research fellowship in skull base surgery in 2014 at the St. Michael's Hospital, University of Toronto, where he also gained further experience in the Gamma Knife radiosurgery and continued to perform emergency neurosurgery in one of the largest trauma centres of Ontario, Canada. His multidisciplinary experience allowed him to lead the publication of the "Handbook of Skull Base Surgery" (Thieme, New York, 2015), which is one of the most used books in the field worldwide. In 2015 Dr. Di Ieva moved to Sydney, where he worked further in general neurosurgery and complex spine surgery (mainly at the Macquarie University Hospital, North Shore Private and Royal North Shore Hospitals, and Sydney Adventist Hospital), earning the fellowship with the Royal Australasian College of Surgeons in 2017.

He is a full time consultant neurosurgeon at Macquarie Neurosurgery and Macquarie University Hospital and Professor of Neurosurgery at Macquarie University.

## Clinical Expertise

Neuro-oncology (surgical and multidisciplinary treatment of tumours and cancer of the central and peripheral nervous systems); pituitary and skull base surgery (including treatment of complex tumours and conditions affecting the cranial nerves and the craniocervical junction); pain treatment (including microvascular decompression and percutaneous treatments for craniofacial pain and hemifacial spasm, decompression of peripheral nerves, spine surgery, neuromodulation); microneurosurgery, endoscopic and minimally invasive ("keyhole") neurosurgery; awake surgery and neuromonitoring; hydrocephalus; neurotraumatology, including the multidisciplinary management of traumatic brain and spine injuries and post-concussion patients.

## Academic qualifications

Professor of Neurosurgery, Macquarie University

Professor of Neurosurgery, Italian Ministry of Education, Universities and Research

Associate Professor of Neuroanatomy, Medical University of Vienna, Austria

ARC Future Fellow (2020-2024)

MD, summa cum laude (2002)

European Board in Neurosurgery (2007)

PhD in Clinical Neurosciences (2011)

FRACS (Fellow of the Royal Australasian College of Surgeons, RACS)

2019 John Mitchell Crouch Fellowship, RACS

Fellowship in Skull Base Surgery and Neuro-oncology (St. Michael's Hospital, Toronto, Canada)

Fellowship in General and Spine Surgery (Royal North Shore Hospital, North Shore Private Hospital and Sydney Adventist Hospital, Sydney)

Associate Investigator, Australian Research Council (ARC) Centre of Excellence in Cognition and its Disorders (until 2018)

Associate Member of the Centre for Elite Performance, Expertise and Training, Macquarie University

Board Member of the Society for Brain Mapping & Therapeutics, USA (until 2019)

## **Employment**

### **ARC Future Fellow**

Research Fellow

Macquarie Medical School

Macquarie University

1 Jan 2022 → present

### **Performance and Expertise Research Centre**

Macquarie University

1 Jan 2023 → 31 Dec 2027

### **ARC Future Fellow**

Australian Research Council

Canberra, Australia

1 Jan 2020 → 31 Dec 2024

### **Professor of Neurosurgery**

Italian Ministry of Education, Universities & Research

Italy

31 Oct 2018 → present

### **Associate Professor of Neurosurgery**

Ministry of Education, Universities and Research

Italy

1 Dec 2017 → present

### **Honorary Research Fellow**

Garvan Institute Medical Research

Sydney, Australia

11 May 2015 → 11 May 2018

### **Associate Investigator**

ARC Centre of Excellence in Cognition and its Disorders (CCD)

Canberra, Australia

### **Associate Member**

Centre for Elite Performance, Expertise and Training (CEPET)

Australia

### **A/Prof. of Neuroanatomy**

Medical University of Vienna

1090 Vienna, Austria

### **Board Member**

## Research outputs

### Analyzing eye paths using fractals

Newport, R. A., Liu, S. & Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 827-848 22 p. (Advances in Neurobiology; vol. 36).

### Computational and translational fractal-based analysis in the translational neurosciences: an overview

Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 781-793 13 p. (Advances in neurobiology; vol. 36).

### Computational fractal-based analysis of brain tumor microvascular networks

Di Ieva, A. & Al-Kadi, O. S., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 525-544 20 p. (Advances in neurobiology; vol. 36).

### Computational fractal-based analysis of MR susceptibility-weighted imaging (SWI) in neuro-oncology and neurotraumatology

Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 445-468 24 p. (Advances in neurobiology; vol. 36).

### Fractal analysis in clinical neurosciences: an overview

Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 261-271 11 p. (Advances in Neurobiology; vol. 36).

### Fractal-based analysis of arteriovenous malformations (AVMs)

Di Ieva, A. & Reishofer, G., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 413-428 16 p. (Advances in Neurobiology; vol. 36).

### Fractal-based analysis of histological features of brain tumors

Al-Kadi, O. S. & Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 501-524 24 p. (Advances in Neurobiology; vol. 36).

### Fractal dimension analysis in neurological disorders: an overview

Díaz Beltrán, L., Madan, C. R., Finke, C., Krohn, S., Di Ieva, A. & Esteban, F. J., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 313-328 16 p. (Advances in Neurobiology; vol. 36).

### Fractal dimension studies of the brain shape in aging and neurodegenerative diseases

Davidson, J. M., Zhang, L., Yue, G. H. & Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 329-363 35 p. (Advances in Neurobiology; vol. 36).

### Fractal geometry meets computational intelligence: future perspectives

Livi, L., Sadeghian, A. & Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 983-997 15 p. (Advances in Neurobiology; vol. 36).

### Fractals in neuroanatomy and basic neurosciences: an overview

Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 141-147 7 p. (Advances in Neurobiology; vol. 36).

### Fractals in neuroimaging

Lahmiri, S., Boukadoum, M. & Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 429-444 16 p. (Advances in Neurobiology; vol. 36).

**Fractals in the neurosciences: a translational geographical approach**

Andronache, I., Peptenatu, D., Ahammer, H., Radulovic, M., Djurić, G. J., Jelinek, H. F., Russo, C. & Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 953-981 29 p. (Advances in Neurobiology; vol. 36).

**Fractals, pattern recognition, memetics, and AI: a personal journal in the computational neurosurgery**

Di Ieva, A., 10 Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 273-283 11 p. (Advances in Neurobiology; vol. 36).

**Quantifying lumbar paraspinal intramuscular fat: accuracy and reliability of automated thresholding models**

Wesselink, E. O., Elliott, J. M., Pool-Goudzwaard, A., Coppieters, M. W., Pevnage, P. P., Di Ieva, A. & Weberl, K. A., Mar 2024, In: North American Spine Society Journal. 17, p. 1-9 9 p., 100313.

**The fractal geometry of the brain: an overview**

Di Ieva, A., Mar 2024, *The fractal geometry of the brain*. Di Ieva, A. (ed.). 2nd ed. Switzerland: Springer, Springer Nature, p. 3-13 11 p. (Advances in Neurobiology; vol. 36).

**Machine learning-based spectroscopic tissue differentiation in fluorescence-guided neurosurgery**

Black, D., Byrne, D., Walke, A., Liu, S., Di Ieva, A., Stummer, W., Salcudean, T. & Suero Molina, E., 10 Nov 2023, In: Neuro-Oncology. 25, Supplement 5, p. v161-v162 2 p., INNV-24.

**Combination drug therapy of glioblastoma: lessons from 3D in vitro models and the roadmap for future research**

Vaezzadeh, M., Kachooei, E., Krishnamurthy, S., Manandhar, P., Nadort, A., Guillemin, G. J., Di Ieva, A., Santiago, M., Heng, B. & Guller, A., Nov 2023, In: Advanced Therapeutics. 6, 11, p. 1-23 23 p., 2300197.

**The E3 ubiquitin ligase SCF cyclin F promotes sequestosome-1/p62 insolubility and foci formation and is dysregulated in ALS and FTD pathogenesis**

Davidson, J. M., Wu, S. S. L., Rayner, S. L., Cheng, F., Duncan, K., Russo, C., Newberry, M., Ding, K., Scherer, N. M., Balez, R., García-Redondo, A., Rábano, A., Rosa-Fernandes, L., Ooi, L., Williams, K. L., Morsch, M., Blair, I. P., Di Ieva, A., Yang, S., Chung, R. S., & 1 othersLee, A., Sept 2023, In: Molecular Neurobiology. 60, 9, p. 5034-5054 21 p.

**Connectomics as a prognostic tool of functional outcome in glioma surgery of the supplementary motor area: illustrative case**

Molina, E. S., Tait, M. J. & Di Ieva, A., 7 Aug 2023, In: Journal of Neurosurgery: Case Lessons. 6, 6, p. 1-6 6 p., CASE23286.

**Artificial intelligence-assisted classification of gliomas using whole-slide images**

Jose, L., Liu, S., Russo, C., Cong, C., Song, Y., Rodriguez, M. & Di Ieva, A., 1 Aug 2023, In: Archives of Pathology and Laboratory Medicine. 147, 8, p. 916-924 9 p.

**Radiomics and machine learning in brain tumors and their habitat: a systematic review**

Tabassum, M., Suman, A. A., Suero-Molina, E., Pan, E., Di Ieva, A. & Liu, S., 28 Jul 2023, In: Cancers. 15, 15, p. 1-22 22 p., 3845.

**Domain-specific pre-training improves confidence in whole slide image classification**

Rohit Chitnis, S., Liu, S., Dash, T., Verlekar, T., Di Ieva, A., Berkovsky, S., Vig, L. & Srinivasan, A., 26 Jul 2023, *IEEE EMBC 2023*. Sydney: Institute of Electrical and Electronics Engineers (IEEE), Vol. 2023. p. 1-4 4 p. (Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual International Conference).

**A Deep Learning Framework for skull stripping in brain MRI**

Tabassum, M., Suman, A. A., Russo, C., Di Ieva, A. & Liu, S., 1 Jul 2023, *IEEE EMBC 2023*. Sydney: Institute of Electrical and Electronics Engineers (IEEE), p. 1-4 4 p.

**A new fractal index to classify forest fragmentation and disorder**

Peptenatu, D., Andronache, I., Ahammer, H., Radulovic, M., Costanza, J. K., Jelinek, H. F., Di leva, A., Koyama, K., Grecu, A., Gruia, A. K., Simion, A-G., Nedelcu, I. D., Olteanu, C., Drăghici, C-C., Marin, M., Diaconu, D. C., Fensholt, R. & Newman, E. A., Jun 2023, In: *Landscape Ecology*. 38, 6, p. 1373-1393 21 p.

**Determining contemporary barriers to effective multidisciplinary team meetings in neurological surgery: a review of the literature**

Anokwute, M. C., Preda, V. & Di leva, A., Apr 2023, In: *World Neurosurgery*. 172, p. 73-80 8 p.

**Inter-regional proteomic profiling of the human brain using an optimized protein extraction method from formalin-fixed tissue to identify signaling pathways**

Davidson, J. M., Rayner, S. L., Liu, S., Cheng, F., Ieva, A. D., Chung, R. S. & Lee, A., 21 Feb 2023, In: *International Journal of Molecular Sciences*. 24, 5, p. 1-18 18 p., 4283.

**Can genetic mutations and molecular markers predict recurrence in adamantinomatous or papillary craniopharyngiomas? A systemic review**

Nicholas, M., Mahfuz, U., Di leva, A., Rodrigues, M. & Preda, V. A., 2023, In: *Journal of the Endocrine Society*. 7, Supplement 1, p. A625 1 p., THU085.

**Integrating eye gaze into machine learning using fractal curves**

Newport, R. A., Liu, S. & Di leva, A., 2023, *NeurIPS 2022 Workshop on Gaze Meets ML*. Lourentzou, I., Wu, J., Kashyap, S., Karargyris, A., Celi, L. A., Kawas, B. & Talathi, S. (eds.). New Orleans: ML Research Press, p. 113-126 14 p. (Proceedings of Machine Learning Research; vol. 210).

**Multilineage plurihormonal (FSH LH TSH PRL ACTH) pituitary neuroendocrine tumour**

Mahfuz, U., Di leva, A., Rodriguez, M. & Preda, V., 2023, In: *Journal of the Endocrine Society*. 7, Supplement 1, p. A630 1 p., THU095.

**TPMIL: Trainable Prototype enhanced Multiple Instance Learning for whole slide image classification**

Yang, L., Mehta, D., Liu, S., Mahapatra, D., Di leva, A. & Ge, Z., 2023, p. 1-11. 11 p.

**Are there identifiable differences in pituitary adenoma width, extension, invasion, or cystic degeneration in subclinical compared to clinical pituitary apoplexy patients?**

Heffernan-Marks, A., Di leva, A., Preda, V., Sach, G. & Magnessun, J., 1 Nov 2022, In: *Journal of the Endocrine Society*. 6, Supplement 1, p. A485-A486 2 p., ODP298.

**Silent corticotroph adenomas: characteristics and comparisons to other non-functioning pituitary adenomas: a case series**  
Ieva, A. D., Lewis, D., Preda, V. A., Rodriguez, M. & Volpati, G., 1 Nov 2022, In: *Journal of the Endocrine Society*. 6, Supplement 1, p. A509-A510 2 p., ODP351.**Thyrotropin secreting pituitary microadenoma and lung adenocarcinoma treated with epidermal growth factor receptor (EGFR)-tyrosine kinase inhibitors (TKIs) Erlotinib and Osimertinib: a case report**

Ieva, A. D., Kim, S. Y., Lewis, D., Poursoltan, P. & Preda, V., 1 Nov 2022, In: *Journal of the Endocrine Society*. 6, Supplement 1, p. A513-A514 2 p., ODP359 .

**Colour adaptive generative networks for stain normalisation of histopathology images**

Cong, C., Liu, S., Di leva, A., Pagnucco, M., Berkovsky, S. & Song, Y., Nov 2022, In: *Medical Image Analysis*. 82, p. 1-13 13 p., 102580.

**Editorial: Fractals in the diagnosis and treatment of the retina and brain diseases**

Zueva, M. V., Di leva, A. & Pyankova, S. D., 18 Oct 2022, In: *Frontiers in Network Physiology*. 2, p. 1-3 3 p., 1054439.

**SoftMatch: comparing scanpaths using combinatorial spatio-temporal sequences with fractal curves**

Newport, R. A., Russo, C., Liu, S., Suman, A. A. & Di leva, A., 30 Sept 2022, In: *Sensors*. 22, 19, p. 1-46 46 p., 7438.

**The legacy of Renaissance surgeon Giovanni Andrea Dalla Croce on the history of military surgery and neurosurgery**  
Di Ieva, A. & Rosenfeld, J. V., 1 Sept 2022, In: *Neurosurgical Focus*. 53, 3, p. 1-8 8 p., E3.

**Use of deep learning in the MRI diagnosis of Chiari malformation type I**  
Tanaka, K. W., Russo, C., Liu, S., Stoodley, M. A. & Di Ieva, A., Aug 2022, In: *Neuroradiology*. 64, 8, p. 1585-1592 8 p.

**Artificial intelligence for survival prediction in brain tumors on neuroimaging**  
Jian, A., Liu, S. & Di Ieva, A., 1 Jul 2022, In: *Neurosurgery*. 91, 1, p. 8-26 19 p.

**Significant venous flow alterations following brain arteriovenous malformation Surgery: assessment by transcranial colour duplex**  
Busch, K., Davidson, A., Di Ieva, A., Assaad, N., Butlin, M., Avolio, A. & Kiat, H., May 2022, In: *Journal of Clinical Neuroscience*. 99, p. 268-274 7 p.

**Anchoring of a mental nerve stimulator for treatment of facial neuropathic pain: a case illustration**  
McCaffrey, M. H., Boesel, T. W. & Di Ieva, A., 21 Apr 2022, (E-pub ahead of print) In: *British Journal of Neurosurgery*. 3 p.

**Application of artificial intelligence and radiomics in pituitary neuroendocrine and sellar tumors: a quantitative and qualitative synthesis**  
Koong, K., Preda, V., Jian, A., Liquet-Weiland, B. & Di Ieva, A., Apr 2022, In: *Neuroradiology*. 64, 4, p. 647-668 22 p.

**Spherical coordinates transformation pre-processing in Deep Convolution Neural Networks for brain tumor segmentation in MRI**  
Russo, C., Liu, S. & Di Ieva, A., Jan 2022, In: *Medical and Biological Engineering and Computing*. 60, 1, p. 121-134 14 p.

**Adaptive unified contrastive learning for imbalanced classification**  
Cong, C., Yang, Y., Liu, S., Pagnucco, M., Di Ieva, A., Berkovsky, S. & Song, Y., 2022, *Machine Learning in Medical Imaging: 13th International Workshop, MLMI 2022, Held in Conjunction with MICCAI 2022, Proceedings*. Lian, C., Cao, X., Rekik, I., Xu, X. & Cui, Z. (eds.). Cham, Switzerland: Springer, Springer Nature, p. 348-357 10 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 13583).

**Foundations of multiparametric brain tumor imaging characterization using machine learning**  
Jian, A., Jang, K., Russo, C., Liu, S. & Di Ieva, A., 2022, *Machine learning in clinical neuroscience: foundations and applications*. Staartjes, V. E., Regli, L. & Serra, C. (eds.). Switzerland: Springer, Springer Nature, p. 183-193 11 p. (Acta Neurochirurgica Supplement; vol. 134).

**Spatial and time domain analysis of eye-tracking data during screening of brain magnetic resonance images**  
Suman, A. A., Russo, C., Carrigan, A., Nalepka, P., Liquet-Weiland, B., Newport, R. A., Kumari, P. & Ieva, A. D., Dec 2021, In: *PLoS ONE*. 16, 12 December, p. 1-19 19 p., e0260717.

**Computational Neurosurgery in brain tumors: a paradigm shift on the use of artificial intelligence and connectomics in pre- and intra-operative imaging**  
Di Ieva, A., Russo, C., Suman, A. A. & Liu, S., 12 Nov 2021, In: *Neuro-Oncology*. 23, Supplement 6, p. vi227 1 p.

**Generative adversarial networks in digital pathology and histopathological image processing: a review**  
Jose, L., Liu, S., Russo, C., Nadort, A. & Di Ieva, A., 3 Nov 2021, In: *Journal of Pathology Informatics*. 12, p. 1-11 11 p., 43.

**Do neurosurgeons follow the guidelines? A world-based survey on severe traumatic brain injury**  
Saraceno, G., Servadei, F., Di Bergamo, L. T., Iaccarino, C., Rubiano, A. M., Zoia, C., de Bonis, P., Raffa, G., Hawryluk, G., Grotenhuis, A., Demetriades, A. K., Sala, F., Belotti, F., Zanin, L., Doglietto, F., Panciani, P. P., Biroli, A., Agosti, E., Serioli, S., Rasulic, L., & 20 others Bruneau, M., Germano, I. M., Bosnjak, R., Thomé, C., Regli, L., Vukic, M., Tessitore, E., Schaller, K., Chaurasia, B., El-Ghandour, N. M., Di Ieva, A., Bongetta, D., Borghesi, I., Fazio, M., Esene, I. N., Rousseau, G., El Abbadi, N., Baccanelli, M., Vajkoczy, P. & Fontanella, M. M., Oct 2021, In: *Journal of Neurosurgical Sciences*. 65, 5

, p. 465-473 9 p.

**Semi-supervised adversarial learning for stain normalization in histopathology images**

Cong, C., Liu, S., Di Ieva, A., Pagnucco, M., Berkovsky, S. & Song, Y., 21 Sept 2021, *Medical Image Computing and Computer Assisted Intervention - MICCAI 2021: 24th International Conference: Strasbourg, France, September 27 – October 1, 2021: Proceedings, Part VIII.* de Bruijne, M., Cattin, P. C., Cotin, S., Padov, N., Speidel, S., Zheng, Y. & Essert, C. (eds.). Cham, Switzerland: Springer, Springer Nature, p. 581-591 11 p. (Lecture Notes in Computer Science; vol. 12908).

**Application of deep learning for automatic segmentation of brain tumors on magnetic resonance imaging: a heuristic approach in the clinical scenario**

Di Ieva, A., Russo, C., Liu, S., Jian, A., Bai, M. Y., Qian, Y. & Magnussen, J. S., Aug 2021, In: *Neuroradiology*. 63, 8, p. 1253-1262 10 p.

**Brain Volumetric and Fractal Analysis of Synthetic MRI: a comparative study with conventional 3D T1-weighted images**

Liu, S., Meng, T., Russo, C., Di Ieva, A., Berkovsky, S., Peng, L., Dou, W. & Qian, L., Aug 2021, In: *European Journal of Radiology*. 141, p. 1-8 8 p., 109782.

**Assessment of eye-tracking scanpath outliers using fractal geometry**

Newport, R., Russo, C., Suman, A. A. & Di Ieva, A., Jul 2021, In: *Heliyon*. 7, 7, p. 1-10 10 p., e07616.

**Machine learning for the prediction of molecular markers in glioma on magnetic resonance imaging: a systematic review and meta-analysis**

Jian, A., Jang, K., Manuguerra, M., Liu, S., Magnussen, J. & Di Ieva, A., 15 Jun 2021, In: *Neurosurgery*. 89, 1, p. 31-44 14 p., nyab10.

**The Royal Australasian College of Surgeons John Mitchell Crouch Fellowship: a neurosurgical perspective**

Di Ieva, A., Rosenfeld, J. V. & Stoodley, M. A., May 2021, In: *ANZ Journal of Surgery*. 91, 5, p. 793-794 2 p.

**Texture enhanced generative adversarial network for stain normalisation in histopathology images**

Cong, C., Liu, S., Di Ieva, A., Pagnucco, M., Berkovsky, S. & Song, Y., 13 Apr 2021, *2021 IEEE 18th International Symposium on Biomedical Imaging (ISBI)*. France: Institute of Electrical and Electronics Engineers (IEEE), p. 1949-1952 4 p.

**Impact of spherical coordinates transformation pre-processing in Deep Convolution Neural Networks for brain tumor segmentation and survival prediction**

Russo, C., Liu, S. & Di Ieva, A., Mar 2021, *Brainlesion: glioma, multiple sclerosis, stroke and traumatic brain injuries: 6th International Workshop, BrainLes 2020 held in conjunction with MICCAI 2020. Revised Selected Papers, Part I*. Crimi, A. & Bakas, S. (eds.). Cham, Switzerland: Springer, Springer Nature, p. 295-306 12 p. (Lecture Notes in Computer Science; vol. 12658).

**Two-stage U-Net++ for medical image segmentation**

Suman, A. A., Sarda, S., Asikuzzaman, M., Webb, A. L., Diana, M. P., Tahtali, M., Di Ieva, A. & Pickering, M. R., 2021, *DICTA 2021: 2021 International Conference on Digital Image Computing: techniques and applications*. Zhou, J., Salvado, O., Sohel, F., Borges, P. & Wang, S. (eds.). Red Hook, NY: Institute of Electrical and Electronics Engineers (IEEE), p. 260-265 6 p.

**Deep learning methodology for differentiating glioma recurrence from radiation necrosis using multimodal magnetic resonance imaging: algorithm development and validation**

Gao, Y., Xiao, X., Han, B., Li, G., Ning, X., Wang, D., Cai, W., Kikinis, R., Berkovsky, S., Di Ieva, A., Zhang, L., Ji, N. & Liu, S., 17 Nov 2020, In: *JMIR Medical Informatics*. 8, 11, p. 1-15 15 p., e19805.

**In Reply to the Letter to the Editor regarding “Delayed contralateral trigeminal neuralgia after microvascular decompression and postoperative change in venous outflow”**

Eibach, S., Steinfort, B. & Di Ieva, A., 1 Oct 2020, In: *World Neurosurgery*. 142, p. 564 1 p.

**Cerebral microvascular dysfunction and clinical considerations of systemic arterial hypertension**  
Kim, J., Mobbs, R. & Di Ieva, A., 7 Sept 2020, In: Hypertension Journal. 6, 3, p. 117-124 8 p.

**Delayed contralateral trigeminal neuralgia after microvascular decompression and postoperative changes in venous outflow**  
Eibach, S., Steinfort, B. & Di Ieva, A., 1 Aug 2020, In: World Neurosurgery. 140, p. 107-108 2 p.

**Radiomics in gliomas: clinical implications of computational modeling and fractal-based analysis**  
Jang, K., Russo, C. & Di Ieva, A., 1 Jul 2020, In: Neuroradiology. 62, 7, p. 771-790 20 p.

**Isocitrate dehydrogenase (IDH) status prediction in histopathology images of gliomas using deep learning**  
Liu, S., Shah, Z., Sav, A., Russo, C., Berkovsky, S., Qian, Y., Coiera, E. & Di Ieva, A., 7 May 2020, In: Scientific Reports. 10, p. 1-11 11 p., 7733.

**Deep learning for automated cerebral aneurysm detection on computed tomography images**  
Dai, X., Huang, L., Qian, Y., Xia, S., Chong, W., Liu, J., Di Ieva, A., Hou, X. & Ou, C., Apr 2020, In: International Journal of Computer Assisted Radiology and Surgery. 15, 4, p. 715-723 9 p.

**Paulus of Aegina and the historical origins of spine surgery**  
Jang, K., Rosenfeld, J. V. & Di Ieva, A., 1 Jan 2020, In: World Neurosurgery. 133, p. 291-301 11 p.

**Magnetic resonance spectroscopic assessment of isocitrate dehydrogenase status in gliomas: the new frontiers of spectroscopy in neurodiagnostics**  
Di Ieva, A., Magnussen, J. S., McIntosh, J., Mulcahy, M. J., Pardey, M. & Choi, C., Jan 2020, In: World Neurosurgery. 133, p. e421-e427 7 p.

**AI-augmented multidisciplinary teams: hype or hope?**  
Di Ieva, A., 16 Nov 2019, In: The Lancet. 394, 10211, p. 1801 1 p.

**Computational quantitative MR image features: a potential useful tool in differentiating glioblastoma from solitary brain metastasis**  
Petrujkić, K., Milošević, N., Rajković, N., Stanisavljević, D., Gavrilović, S., Dželebdžić, D., Ilić, R., Di Ieva, A. & Maksimović, R., 1 Oct 2019, In: European Journal of Radiology. 119, p. 1-8 8 p., 108634.

**Dynamics of forest fragmentation and connectivity using particle and fractal analysis**  
Andronache, I., Marin, M., Fischer, R., Ahammer, H., Radulovic, M., Ciobotaru, A-M., Jelinek, H. F., Di Ieva, A., Pintilii, R. D., Drăghici, C-C., Herman, G. V., Nicula, A. S., Simion, A-G., Loghin, I-V., Diaconu, D-C. & Peptenatu, D., 22 Aug 2019, In: Scientific Reports. 9, 1, p. 1-9 9 p., 12228.

**Cranial nerve nomenclature: historical vignette**  
Li Ching Ng, A., Rosenfeld, J. V. & Di Ieva, A., 1 Aug 2019, In: World Neurosurgery. 128, p. 299-307 9 p.

**How I do it: 3D endoscopic-assisted microvascular decompression**  
Li Ching Ng, A. & Di Ieva, A., 1 Jul 2019, In: Acta Neurochirurgica. 161, 7, p. 1443-1447 5 p.

**Letter to the Editor Regarding "The Exoscope in Neurosurgery: An Innovative Point of View. A Systematic Review of the Technical, Surgical, and Educational Aspects"**  
Di Ieva, A. & Tschaibitscher, M., 1 Jul 2019, In: World Neurosurgery. 127, p. 652 1 p.

**Retractor**  
Di Ieva, A., 20 Jun 2019, (Submitted) IPC No. A61B 1/32 2006.01, A61M 29/02 2006.01, A61B 17/02 2006.01, Patent No. WO2019113638, 11 Dec 2018, Priority date 11 Dec 2017, Priority No. AU2017904974

**Compendio di biologia per infanti**

Di Ieva, A., 21 Dec 2018, Rome: Aracne Editrice. 160 p. (Vita: Origine & Evoluzione)

**Preface**

Di Ieva, A., Oct 2018, *Algebraic quantum theory of consciousness: a solution to the problem of quantum collapse in systems having three anticommuting elements*. Conte, E. (ed.). Italy: Aracne Editrice, p. 7-9 3 p.

**Microvascularization of Grade I meningiomas: effect on tumor volume, blood loss, and patient outcome**

Karsy, M., Burnett, B., Di Ieva, A., Cusimano, M. D. & Jensen, R. L., 1 Mar 2018, In: *Journal of Neurosurgery*. 128, 3, p. 657-666 10 p.

**Spectroscopy in neurodiagnostics: the new era**

Di Ieva, A., Choi, C. & Magnussen, J. S., 1 Feb 2018, In: *Neuroradiology*. 60, 2, p. 129-131 3 p.

**Transcranial colour duplex and central aortic pressure measurements in the management of cerebral arteriovenous malformations: a pilot study using non-invasive measures**

Busch, K., Avolio, A., Butlin, M., Kiat, H., Di Ieva, A., Assaad, N. & Tan, I., 2018, p. 150. 1 p.

**Training in skull base surgery: a holistic perspective**

Di Ieva, A., 1 Dec 2017, In: *Journal of Neurosurgical Sciences*. 61, 6, p. 690-691 2 p.

**Vasculogenic mimicry in clinically non-functioning pituitary Adenomas: a histologic study**

Di Michele, J., Rotondo, F., Kovacs, K., Syro, L. V., Yousef, G. M., Cusimano, M. D. & Di Ieva, A., Oct 2017, In: *Pathology and Oncology Research*. 23, 4, p. 803-809 7 p.

**Box-counting method in quantitative analysis of images of the brain**

Milosevic, N. T., Di Ieva, A., Jelinek, H. & Rajkovic, N., 5 Jul 2017, *2017 21st International Conference on Control Systems and Computer Science (CSCS) : proceedings*. Dumitache, Florea, AM., Pop, F. & Dumitrescu, A. (eds.). Piscataway, NJ, USA: Institute of Electrical and Electronics Engineers (IEEE), p. 343-349 7 p. 7968581

**The impact of body mass index and height on the risk for glioblastoma and other glioma subgroups: a large prospective cohort study**

Wiedmann, M. K. H., Brunborg, C., Di Ieva, A., Lindemann, K., Johannessen, T. B., Vatten, L., Helseth, E. & Zwart, J. A., 1 Jul 2017, In: *Neuro-Oncology*. 19, 7, p. 976-985 10 p.

**Cerebrospinal fluid leaks in extended endoscopic transsphenoidal surgery: covering all the angles**

Fathalla, H., Di Ieva, A., Lee, J., Anderson, J., Jing, R., Solarski, M. & Cusimano, M. D., Apr 2017, In: *Neurosurgical Review*. 40, 2, p. 309-318 10 p.

**Overweight, obesity and height as risk factors for meningioma, glioma, pituitary adenoma and nerve sheath tumor: a large population-based prospective cohort study**

Wiedmann, M. K. H., Brunborg, C., Di Ieva, A., Lindemann, K., Johannessen, T. B., Vatten, L., Helseth, E. & Zwart, J. A., 2017, In: *Acta Oncologica*. 56, 10, p. 1302-1309 8 p.

**Diagnostic Value of Fractal Analysis for the Differentiation of Brain Tumors Using 3-Tesla Magnetic Resonance Susceptibility-Weighted Imaging**

Di Ieva, A., Le Reste, P. J., Carsin-Nicol, B., Ferre, J. C. & Cusimano, M. D., Dec 2016, In: *Neurosurgery*. 79, 6, p. 839-846 7 p.

**Arginine vasopressin (AVP): a review of its historical perspectives, current research and multifunctional role in the hypothalamo-hypophy whole system**

Rotondo, F., Butz, H., Syro, L. V., Yousef, G. M., Di Ieva, A., Restrepo, L. M., Quintanar-Stephano, A., Berczi, I. & Kovacs, K., 1 Aug 2016, In: *Pituitary*. 19, 4, p. 345-355 11 p.

**Current applications and future perspectives of the use of 3D printing in anatomical training and neurosurgery**  
Baskaran, V., Štrkalj, G., Štrkalj, M. & Di Ieva, A., 24 Jun 2016, In: *Frontiers in Neuroanatomy*. 10, p. 1-7 7 p., 69.

**Biomarkers of pituitary carcinomas**

Sav, A., Rotondo, F., Syro, L. V., Di Ieva, A., Cusimano, M. D. & Kovacs, K., 3 May 2016, In: *Expert Review of Endocrinology and Metabolism*. 11, 3, p. 253-261 9 p.

**Computational fractal-based analysis of brain tumor microvascular networks**

Di Ieva, A. & Al-Kadi, O. S., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 393-411 19 p. (Springer Series in Computational Neuroscience).

**Computational fractal-based analysis of MR susceptibility-weighted imaging (SWI) in neuro-oncology and neurotraumatology**

Di Ieva, A., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 311-332 22 p. (Springer Series in Computational Neuroscience).

**Computational fractal-based neurosciences: an overview**

Di Ieva, A., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 499-502 4 p. (Springer Series in Computational Neuroscience).

**Fractal analysis in clinical neurosciences: an overview**

Di Ieva, A., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 189-198 10 p. (Springer Series in Computational Neuroscience).

**Fractal analysis in neurological diseases**

Esteban, F. J., Díaz-Beltrán, L. & Di Ieva, A., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 199-211 13 p. (Springer Series in Computational Neuroscience).

**Fractal-based analysis of arteriovenous malformations (AVMs)**

Di Ieva, A. & Reishofer, G., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 279-293 15 p. (Springer Series in Computational Neuroscience).

**Fractal geometry meets computational intelligence: future perspectives**

Livi, L., Sadeghian, A. & Di Ieva, A., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 567-580 14 p. (Springer Series in Computational Neuroscience).

**Fractals in neuroanatomy and basic neurosciences: an overview**

Di Ieva, A., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 83-89 7 p. (Springer Series in Computational Neuroscience).

**Fractals in neuroimaging**

Lahmiri, S., Boukadoum, M. & Di Ieva, A., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 295-309 15 p. (Springer Series in Computational Neuroscience).

**Handbook of skull base surgery**

Di Ieva, A. (ed.), Lee, J. M. (ed.) & Cusimano, M. D. (ed.), 2016, New York: Thieme Medical Publishers. 1004 p.

**Histological fractal-based classification of brain tumors**

Al-Kadi, O. S. & Di Ieva, A., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 371-391 21 p. (Springer Series in Computational Neuroscience).

**The Fractal geometry of the brain**

Di Ieva, A. (ed.), 2016, New York: Springer, Springer Nature. 585 p. (Springer Series in Computational Neuroscience)

**The Fractal geometry of the brain: an overview**

Di Ieva, A., 2016, *The Fractal geometry of the brain*. Di Ieva, A. (ed.). New York: Springer, Springer Nature, p. 3-12 10 p. (Springer Series in Computational Neuroscience).

Magnetic resonance susceptibility weighted imaging in neurosurgery: current applications and future perspectives  
Di Ieva, A., Lam, T., Alcaide-Leon, P., Bharatha, A., Montanera, W. & Cusimano, M. D., 1 Dec 2015, In: *Journal of Neurosurgery*. 123, 6, p. 1463-1475 13 p.

**Pituitary adenoma and the chemokine network: a systemic view**

Grizzi, F., Borroni, E. M., Vacchini, A., Qehajaj, D., Liguori, M., Stifter, S., Chiriva-Internati, M. & Di Ieva, A., 11 Sept 2015, In: *Frontiers in Endocrinology*. 6, p. 1-5 5 p., 141.

Diagnostic and prognostic biomarkers of a sellar melanocytic tumor mimicking pituitary adenoma: case report and literature review

Mohammed, A. A., Rotondo, F., Munoz, D. G., Kovacs, K., Bilbao, J. M., Karamchandani, J. R., Di Ieva, A. & Cusimano, M. D., 1 Sept 2015, In: *Pathology, research and practice*. 211, 9, p. 682-687 6 p.

**Autophagy in endocrine tumors**

Weckman, A., Rotondo, F., Di Ieva, A., Syro, L. V., Butz, H., Cusimano, M. D. & Kovacs, K., 1 Aug 2015, In: *Endocrine-Related Cancer*. 22, 4, p. R205-R218 14 p.

Human kallikrein 10 expression in surgically removed human pituitary corticotroph adenomas: an immunohistochemical study

Di Meo, A., Rotondo, F., Kovacs, K., Cusimano, M. D., Syro, L. V., Di Ieva, A., Diamandis, E. P. & Yousef, G. M., 23 Jul 2015, In: *Applied Immunohistochemistry and Molecular Morphology*. 23, 6, p. 433-437 5 p.

**Endoscopic versus microscopic approach for surgical treatment of acromegaly**

Fathalla, H., Cusimano, M. D., Di Ieva, A., Lee, J., Alsharif, O., Goguen, J., Zhang, S. & Smyth, H., 18 Jul 2015, In: *Neurosurgical Review*. 38, 3, p. 541-549 9 p.

**Osteomalacia-inducing tumors of the brain: a case report, review and a hypothesis**

Fathalla, H., Cusimano, M., Di Ieva, A., Karamchandani, J., Fung, R. & Kovacs, K., 1 Jul 2015, In: *World Neurosurgery*. 84 , 1, p. 189.e1-189.e5 5 p.

**Progress in the diagnosis and classification of pituitary adenomas**

Syro, L. V., Rotondo, F., Ramirez, A., Di Ieva, A., Sav, A., Restrepo, L. M., Serna, C. A. & Kovacs, K., 12 Jun 2015, In: *Frontiers in Endocrinology*. 6, p. 1-8 8 p., 97.

Treatment of invasive silent somatotroph pituitary adenoma with Temozolomide. Report of a case and review of the literature

Ghazi, A. A., Rotondo, F., Kovacs, K., Amirbaigloo, A., Syro, L. V., Fathalla, H., Di Ieva, A. & Cusimano, M. D., 22 May 2015, In: *Endocrine Pathology*. 26, 2, p. 135-139 5 p., 6.

**Crooke's cell tumors of the pituitary**

Di Ieva, A., Davidson, J. M., Syro, L. V., Rotondo, F., Montoya, J. F., Horvath, E., Cusimano, M. D. & Kovacs, K., 21 May 2015, In: *Neurosurgery*. 76, 5, p. 616-622 7 p.

**Computational analyses of arteriovenous malformations in neuroimaging**

Di Ieva, A., Boukadoum, M., Lahmiri, S. & Cusimano, M. D., 1 May 2015, In: *Journal of Neuroimaging*. 25, 3, p. 354-360 7 p.

**Chordoid meningiomas: incidence and clinicopathological features of a case series over 18 years**

Di Ieva, A., Laiq, S., Nejad, R., Schmitz, E. M., Fathalla, H., Karamchandani, J., Munoz, D. G. & Cusimano, M. D., 1 Apr 2015, In: *Neuropathology*. 35, 2, p. 137-147 11 p.

**Current status on histological classification in Cushing's disease**  
Syro, L. V., Rotondo, F., Cusimano, M. D., Di Ieva, A., Horvath, E., Restrepo, L. M., Wong, M., Killinger, D. W., Smyth, H. & Kovacs, K., 1 Apr 2015, In: *Pituitary*. 18, 2, p. 217-224 8 p.

**Human kallikrein 10 in surgically removed human pituitary adenomas**  
Rotondo, F., Di Ieva, A., Kovacs, K., Cusimano, M. D., Syro, L. V., Diamandis, E. P. & Yousef, G. M., 1 Apr 2015, In: *Hormones*. 14, 2, p. 272-279 8 p.

**Invasive, atypical and aggressive pituitary adenomas and carcinomas**  
Sav, A., Rotondo, F., Syro, L. V., Di Ieva, A., Cusimano, M. D. & Kovacs, K., 1 Mar 2015, In: *Endocrinology and Metabolism Clinics of North America*. 44, 1, p. 99-104 6 p.

**Fractals in the neurosciences, part II: Clinical applications and future perspectives**  
Di Ieva, A., Esteban, F. J., Grizzi, F., Klonowski, W. & Martín-Landrove, M., 17 Feb 2015, In: *Neuroscientist*. 21, 1, p. 30-43 14 p.

**The indusium griseum and the longitudinal striae of the corpus callosum**  
Di Ieva, A., Fathalla, H., Cusimano, M. D. & Tschabitscher, M., 1 Jan 2015, In: *Cortex*. 62, p. 34-40 7 p.

**Letter to the Editor**  
Kovacs, K., Rotondo, F., Horvath, E., Syro, L. V., Di Ieva, A., Cusimano, M. D. & Munoz, D. G., 2015, In: *Endocrine Pathology*. 26, 1, p. 93-94 2 p.

**The comprehensive AO/CF classification: skull base and cranial vault fractures - Level 2 and 3 tutorial**  
Ieva, A. D., Audigé, L., Kellman, R. M., Shumrick, K. A., Ringl, H., Prein, J. & Matula, C., 25 Dec 2014, In: *Craniomaxillofacial Trauma and Reconstruction*. 7, 1 supplement, p. S103-S113 11 p.

**A journey into the technical evolution of neuroendoscopy**  
Di Ieva, A., Tam, M., Tschabitscher, M. & Cusimano, M. D., 1 Dec 2014, In: *World Neurosurgery*. 82, 6, p. E777-E789 13 p.

**The comprehensive AO/CF classification system: radiological issues and systematic approach**  
Buitrago-Téllez, C. H., Cornelius, C. P., Prein, J., Kunz, C., di Ieva, A. & Audigé, L., Dec 2014, In: *Craniomaxillofacial Trauma and Reconstruction*. 7, Suppl 1, p. S123-S130 8 p.

**The first AO classification system for fractures of the craniomaxillofacial skeleton: rationale, methodological background, developmental process, and objectives**  
Audigé, L., Cornelius, C. P., Ieva, A. D., Prein, J. & CMF Classification Group, Dec 2014, In: *Craniomaxillofacial Trauma and Reconstruction*. 7, Suppl 1, p. S6-S14 9 p.

**Fractal-based arteriovenous malformations detection in brain magnetic resonance images**  
Lahmiri, S., Boukadoum, M. & Di Ieva, A., 22 Oct 2014, *NEWCAS 2014: Proceedings of the 2014 IEEE 12th International New Circuits and Systems Conference*. Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 21-24 4 p.

**Fractals in the neurosciences, part I: General principles and basic neurosciences**  
Di Ieva, A., Grizzi, F., Jelinek, H., Pellionisz, A. J. & Losa, G. A., Aug 2014, In: *Neuroscientist*. 20, 4, p. 403-417 15 p.

**MicroRNAs as biomarkers in pituitary tumors**  
Di Ieva, A., Butz, H., Niamah, M., Rotondo, F., De Rosa, S., Sav, A., Yousef, G. M., Kovacs, K. & Cusimano, M. D., Aug 2014, In: *Neurosurgery*. 75, 2, p. 181-188 8 p.

Aggressive pituitary adenomas-diagnosis and emerging treatments  
Di Ieva, A., Rotondo, F., Syro, L. V., Cusimano, M. D. & Kovacs, K., Jul 2014, In: *Nature Reviews Endocrinology*. 10, 7, p. 423-435 13 p.

Computational fractal-based analysis of brain arteriovenous malformation angioarchitecture  
Di Ieva, A., Niamah, M., Menezes, R. J., Tsao, M., Krings, T., Cho, Y. B., Schwartz, M. L. & Cusimano, M. D., Jul 2014, In: *Neurosurgery*. 75, 1, p. 72-79 8 p.

Improving differential diagnosis of pituitary adenomas  
Syro, L. V., Builes, C. E., Di Ieva, A., Sav, A., Rotondo, F. & Kovacs, K., Jul 2014, In: *Expert Review of Endocrinology and Metabolism*. 9, 4, p. 377-386 10 p.

Intrasellar melanocytic tumor mimicking pituitary adenoma  
Rotondo, F., Munoz, D. G., Karamchandani, J., Bilbao, J., Iakovlev, V., Cusimano, M. D., Di Ieva, A. & Kovacs, K., Jun 2014, In: *Endocrine Reviews*. 35, 4 Supplement, 1 p., SUN-0724.

Skull base embryology: A multidisciplinary review  
Di Ieva, A., Bruner, E., Haider, T., Rodella, L. F., Lee, J. M., Cusimano, M. D. & Tschabitscher, M., Jun 2014, In: *Child's Nervous System*. 30, 6, p. 991-1000 10 p.

Watertight dural closure in brain surgery: a simple model for training  
Matula, C., Kjærsgaard, L. & Di Ieva, A., May 2014, In: *Journal of Neurological Surgery, Part A: Central European Neurosurgery*. 75, 3, p. 241-245 5 p.

Evaluation of cerebral aneurysm wall thickness in experimental aneurysms: Comparison of 3T-MR imaging with direct microscopic measurements  
Sherif, C., Kleinpeter, G., Mach, G., Loyoddin, M., Haider, T., Plasenzotti, R., Bergmeister, H., Di Ieva, A., Gibson, D. & Krssak, M., Jan 2014, In: *Acta Neurochirurgica*. 156, 1, p. 27-34 8 p.

Detrended fluctuation analysis of brain hemisphere magnetic resonance images to detect cerebral arteriovenous malformations  
Lahmiri, S., Boukadoum, M. & Di Ieva, A., 2014, *IEEE International Symposium on Circuits and Systems : ISCAS 2014: proceedings*. Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 2409-2412 4 p.

Distinguishing Alzheimer's disease from normal pressure hydrocephalus: A search for MRI biomarkers  
Di Ieva, A., Valli, M. & Cusimano, M. D., 2014, In: *Journal of Alzheimer's Disease*. 38, 2, p. 331-350 20 p.

Autophagy in the endocrine glands  
Weckman, A., Di Ieva, A., Rotondo, F., Syro, L. V., Ortiz, L. D., Kovacs, K. & Cusimano, M. D., 19 Dec 2013, In: *Journal of Molecular Endocrinology*. 52, 2, p. R151-R163 13 p.

Analysis of intracranial pressure: Past, present, and future  
Di Ieva, A., Schmitz, E. M. & Cusimano, M. D., Dec 2013, In: *Neuroscientist*. 19, 6, p. 592-603 12 p.

Endoscopic extradural subtemporal approach to lateral and central skull base: A cadaveric study  
Komatsu, F., Komatsu, M., Di Ieva, A. & Tschabitscher, M., Nov 2013, In: *World Neurosurgery*. 80, 5, p. 591-597 7 p.

Microvascular morphometrics of the hypophysis and pituitary tumors: From bench to operating theatre  
Di Ieva, A., Weckman, A., Di Michele, J., Rotondo, F., Grizzi, F., Kovacs, K. & Cusimano, M. D., Sept 2013, In: *Microvascular Research*. 89, p. 7-14 8 p.

Cranial sutures: a multidisciplinary review  
Di Ieva, A., Bruner, E., Davidson, J., Pisano, P., Haider, T., Stone, S. S., Cusimano, M. D., Tschabitscher, M. & Grizzi, F., Jun 2013, In: *Child's Nervous System*. 29, 6, p. 893-905 13 p.

### **Rethinking immunotherapy for brain cancers in the light of cancer complexity**

Grizzi, F. & Di Ieva, A., May 2013, In: *The Indian journal of medical research.* 137, 5, p. 871-873 3 p.

Endoscopic far-lateral approach to the posterolateral craniocervical junction: An anatomical study  
Komatsu, F., Komatsu, M., Di Ieva, A. & Tschabitscher, M., Apr 2013, In: *Neurosurgical Review.* 36, 2, p. 239-247 9 p.

Practical guidelines for setting up an endoscopic/skull base cadaver laboratory

Tschabitscher, M. & Di Ieva, A., Feb 2013, In: *World Neurosurgery.* 79, 2 SUPPL., p. S16.e1-S16.e7 7 p.

### **Comment**

Di Ieva, A., Jan 2013, In: *Neurosurgery.* 72, 1, p. 91 1 p.

Three-dimensional susceptibility-weighted imaging at 7 T using fractal-based quantitative analysis to grade gliomas

Di Ieva, A., Göd, S., Grabner, G., Grizzi, F., Sherif, C., Matula, C., Tschabitscher, M. & Trattnig, S., Jan 2013, In: *Neuroradiology.* 55, 1, p. 35-40 6 p.

Canula-assisted endoscopy in bi-portal transphenoidal cranial base surgery: Technical note

Cusimano, M. D., Di Ieva, A., Lee, J. & Anderson, J., 2013, In: *Acta Neurochirurgica.* 155, 5, p. 909-911 3 p.

Ghrelin: A GH-releasing, appetite-regulating gastric hormone

Di Michele, J., Rotondo, F., Kovacs, K., Di Ieva, A., Syro, L. V., Latta, E. & Cusimano, M. D., 2013, In: *Advances in Neuroimmune Biology.* 4, 2, p. 51-65 15 p.

Endoscopic approaches to the trigeminal nerve and clinical consideration for trigeminal schwannomas: A cadaveric study

Komatsu, F., Komatsu, M., Ieva, A. D. & Tschabitscher, M., Oct 2012, In: *Journal of Neurosurgery.* 117, 4, p. 690-696 7 p.

Endoscopy and skull base

Komatsu, F., Komatsu, M., Ieva, A. D. & Tschabitscher, M., Oct 2012, In: *Journal of Neurosurgery.* 117, 4, p. 689 1 p.

Computerized occlusion rating: A superior predictor of aneurysm rebleeding for ruptured embolized aneurysms

Sherif, C., Gruber, A., Schuster, E., Lahnsteiner, E., Gibson, D., Milavec, H., Feichter, B., Wiesender, M., Dorfer, C., Krawagna, M., Di Ieva, A., Bavinszki, G. & Knosp, E., Sept 2012, In: *American Journal of Neuroradiology.* 33, 8, p. 1481-1487 7 p.

Fractal analysis of microvascular networks in malignant brain tumors

Di Ieva, A., Sept 2012, In: *Clinical Neuropathology.* 31, 5, p. 342-351 10 p.

Endoscopic telovelar approach to the fourth ventricle: Anatomic study

Ieva, A. D., Komatsu, M., Komatsu, F. & Tschabitscher, M., Jul 2012, In: *Neurosurgical Review.* 35, 3, p. 341-348 8 p.

Strong 5-aminolevulinic acid-induced fluorescence is a novel intraoperative marker for representative tissue samples in stereotactic brain tumor biopsies

Widhalm, G., Minchev, G., Woehrer, A., Preusser, M., Kiesel, B., Furtner, J., Mert, A., Ieva, A. D., Tomanek, B., Prayer, D., Marosi, C., Hainfellner, J. A., Knosp, E. & Wolfsberger, S., Jul 2012, In: *Neurosurgical Review.* 35, 3, p. 381-391 11 p.

Fractal analysis of the susceptibility weighted imaging patterns in malignant brain tumors during antiangiogenic treatment: Technical report on four cases serially imaged by 7 T magnetic resonance during a period of four weeks

Di Ieva, A., Matula, C., Grizzi, F., Grabner, G., Trattnig, S. & Tschabitscher, M., May 2012, In: *World Neurosurgery.* 77, 5-6, p. 785.e11-785.e21 11 p.

A management algorithm for cerebrospinal fluid leak associated with anterior skull base fractures: Detailed clinical and radiological follow-up

Sherif, C., Di Ieva, A., Gibson, D., Bita, P. B., Widhalm, G., Irena, K. M., Erdoes, J., Gilloon, B. & Matula, C., Apr 2012, In: Neurosurgical Review. 35, 2, p. 227-237 11 p.

The subdiaphragmatic cistern: historic and radioanatomic findings

Di Ieva, A., Tschaibitscher, M., Matula, C., Komatsu, F., Komatsu, M., Colombo, G., Sherif, C. & Galzio, R. J., Apr 2012, In: Acta Neurochirurgica. 154, 4, p. 667-674 8 p.

**Computer-assisted and fractal-based morphometric assessment of microvascularity in histological specimens of gliomas**

Di Ieva, A., Bruner, E., Widhalm, G., Minchev, G., Tschaibitscher, M. & Grizzi, F., 2012, In: Scientific Reports. 2, p. 1-10 10 p., 429.

Endoscopic reconstruction of the middle cranial fossa through a subtemporal keyhole using a pedicled deep temporal fascial flap: a cadaveric study.

Komatsu, M., Komatsu, F., Di Ieva, A., Inoue, T. & Tschaibitscher, M., 2012, In: Neurosurgery. 70, Issue Suppl 1, p. ons157-ons-162 6 p.

Fractal-based classification of brain tumors angioarchitecture

Di Ieva, A. & Tschaibitscher, M., 2012, *Classification and application of fractals: new research*. Mitchell, E. W. & Murray, S. R. (eds.). New York: Nova Science Publishers, p. 205-216 12 p. (Mathematics research developments).

Sperm Protein 17: Is It a Useful Target Antigen in Human Pituitary Adenomas?

Grizzi, F., Di Ieva, A., Di Biccari, S., Ceva-Grimaldi, G., Colombo, P. & Tschaibitscher, M., 2012, In: Procedia in Vaccinology. 6, p. 39-46 8 p.

On the fractal nature of nervous cell system

Losa, G. A., Di Ieva, A., Grizzi, F. & De Vico, G., Jul 2011, In: Frontiers in Neuroanatomy. 5, p. 1-2 2 p., 45.

Berengario da Carpi: A pioneer in neurotraumatology - Historical vignette

Di Ieva, A., Gaetani, P., Matula, C., Sherif, C., Skopec, M. & Tschaibitscher, M., May 2011, In: Journal of Neurosurgery. 114, 5, p. 1461-1470 10 p.

**Microsurgical venous pouch arterial-bifurcation aneurysms in the rabbit model: technical aspects**

Sherif, C., Fandino, J., Erhardt, S., di Ieva, A., Killer, M., Kleinpeter, G. & Marbacher, S., May 2011, In: Journal of visualized experiments : JoVE. 51, p. 1-4 4 p., e2718.

Angioarchitectural heterogeneity in human glioblastoma multiforme: A fractal-based histopathological assessment

Di Ieva, A., Grizzi, F., Sherif, C., Matula, C. & Tschaibitscher, M., Mar 2011, In: Microvascular Research. 81, 2, p. 222-230 9 p.

The veins of the nucleus dentatus: Anatomical and radiological findings

Di Ieva, A., Tschaibitscher, M., Galzio, R. J., Grabner, G., Kronnerwetter, C., Widhalm, G., Matula, C. & Trattnig, S., 1 Jan 2011, In: NeuroImage. 54, 1, p. 74-79 6 p.

**Brain anatomy - from a clinical and neurosurgical perspective: a clinically oriented manual of neuroanatomy**

Di Ieva, A., 2011, (Unpublished) 117 p.

Endoscopic anatomy of persistent trigeminal artery: A cadaveric study

Komatsu, F., Komatsu, M., Di Ieva, A. & Tschaibitscher, M., 2011, In: Minimally Invasive Neurosurgery. 54, 5-6, p. 223-227 5 p.

Angioarchitectural morphometrics of brain tumors: are there any potential histopathological biomarkers?

Di Ieva, A., Dec 2010, In: Microvascular Research. 80, 3, p. 522-533 12 p.

Correlation of microvascular fractal dimension with positron emission tomography [ $^{11}\text{C}$ ]-methionine uptake in glioblastoma multiforme: Preliminary findings  
Di Ieva, A., Grizzi, F., Tschabitscher, M., Colombo, P., Casali, M., Simonelli, M., Widhalm, G., Muzzio, P. C., Matula, C., Chiti, A. & Rodriguez y Baena, R., Sept 2010, In: Microvascular Research. 80, 2, p. 267-273 7 p.

**Microvessel density**

Di Ieva, A. & Grizzi, F., Sept 2010, In: Journal of Neurosurgery: Pediatrics. 6, 3, p. 304-306 3 p.

**Microtechnologies in neurosurgery**

Di Ieva, A., 1 Jun 2010, In: Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine. 224, 6, p. 797-800 4 p.

**The microvascular network of the pituitary gland: A model for the application of fractal geometry to the analysis of angioarchitecture and angiogenesis of brain tumors**

Di Ieva, A., Grizzi, F., Ceva-Grimaldi, G., Aimar, E., Serra, S., Pisano, P., Lorenzetti, M., Tancioni, F., Gaetani, P., Crotti, F., Tschabitscher, M., Matula, C. & Rodriguez Y Baena, R., Jun 2010, In: Journal of Neurosurgical Sciences. 54, 2, p. 49-54 6 p.

**Magnetic resonance elastography: A general overview of its current and future applications in brain imaging**

Di Ieva, A., Grizzi, F., Rognone, E., Tse, Z. T. H., Parittotokkaporn, T., Rodriguez Y Baena, F., Tschabitscher, M., Matula, C., Trattnig, S. & Rodriguez Y Baena, R., Apr 2010, In: Neurosurgical Review. 33, 2, p. 137-145 9 p.

**Vertebroplasty for pain relief and spinal stabilization in multiple myeloma**

Tancioni, F., Lorenzetti, M., Navarria, P., Nozza, A., Castagna, L., Gaetani, P., Aimar, E., Levi, D., Di Ieva, A., Pisano, P., Santoro, A., Scorsetti, M. & Y Baena, R. R., Apr 2010, In: Neurological Sciences. 31, 2, p. 151-157 7 p.

**Lumbar arachnoiditis and thecaloscopy: Brief review and proposed treatment algorithm**

Di Ieva, A., Barolat, G., Tschabitscher, M., Rognone, E., Aimar, E., Gaetani, P., Tancioni, F., Lorenzetti, M., Crotti, F. M., Rodriguez Baena, R. & Warnke, J. P., 2010, In: Zentralblatt fur Neurochirurgie. 71, 4, p. 207-212 6 p.

**Liquor cotunnii: The history of cerebrospinal fluid in Domenico Cotugno's work**

Di Ieva, A. & Yaşargil, M. G., Aug 2008, In: Neurosurgery. 63, 2, p. 352-358 7 p.

**Euclidean and fractal geometry of microvascular networks in normal and neoplastic pituitary tissue**

Di Ieva, A., Grizzi, F., Gaetani, P., Goglia, U., Tschabitscher, M., Mortini, P. & Rodriguez Y Baena, R., Jul 2008, In: Neurosurgical Review. 31, 3, p. 271-280 10 p.

**Antiangiogenic strategies in medulloblastoma: Reality or mystery**

Grizzi, F., Weber, C. & Di Ieva, A., May 2008, In: Pediatric Research. 63, 5, p. 584-590 7 p.

**Memetics in neurosurgery and neuroscience**

Di Ieva, A., 2008, In: NeuroQuantology. 6, 2, p. 182-193 12 p.

**Fractal dimension as a quantitator of the microvasculature of normal and adenomatous pituitary tissue**

di Leva, A., Grizzi, F., Ceva-Grimaldi, G., Russo, C., Gaetani, P., Aimar, E., Levi, D., Pisano, P., Tancioni, F., Nicola, G., Tschabitscher, M., Dioguardi, N. & Rodriguez y Baena, R., Nov 2007, In: Journal of Anatomy. 211, 5, p. 673-680 8 p.

**Intramedullary astrocytoma with granular cell differentiation**

Rodriguez Y Baena, R., Di Ieva, A., Colombo, P., Collini, P., Navarria, P., Scorsetti, M., Gaetani, P. & Santoro, A., Oct 2007, In: Neurosurgical Review. 30, 4, p. 339-343 5 p.

**Lancisi's nerves and the seat of the soul**

Di Ieva, A., Tschabitscher, M. & Y Baena, R. R., Mar 2007, In: Neurosurgery. 60, 3, p. 563-568 6 p.

De novo formation of the ventriculus terminalis? A brief report of a special case  
Tancioni, F., Di Ieva, A., Gaetani, P., Aimar, E., Pisano, P., Levi, D., Rognone, F. & Rodriguez Y Baena, R., Feb 2007, In: Neuroradiology Journal. 20, 1, p. 71-74 4 p.

The neuroanatomical plates of Guido da Vigevano  
Di Ieva, A., Tschabitscher, M., Prada, F., Gaetani, P., Aimar, E., Pisano, P., Levi, D., Nicassio, N., Serra, S., Tancioni, F., Arosio, M. & Rodriguez y Baena, R., 2007, In: Neurosurgical Focus. 23, 1, p. 1-4 4 p., E15.

Oligodendroglial gliomatosis cerebri: Case report  
Di Ieva, A., Gaetani, P., Giannini, M., Aimar, E., Levi, D., Tancioni, F., Secci, L., Colombo, P., Debernardi, A., Scorsetti, M., Navarría, P., Rognone, F. & Rodriguez Y Baena, R., Dec 2006, In: Journal of Neurosurgical Sciences. 50, 4, p. 123-125 3 p.

Cancer initiation and progression: An unsimplifiable complexity  
Grizzi, F., Di Ieva, A., Russo, C., Frezza, E. E., Cobos, E., Muzzio, P. C. & Chiriva-Internati, M., 17 Oct 2006, In: Theoretical Biology and Medical Modelling. 3, p. 1-6 6 p., 37.

Spinal decompression and vertebroplasty in Paget's disease of the spine  
Tancioni, F., Di Ieva, A., Levi, D., Aimar, E., Debernardi, A., Colombo, P., Gaetani, P. & Rodriguez y Baena, R., Aug 2006, In: Surgical Neurology. 66, 2, p. 189-191 3 p.

#### **Sperm protein 17 is expressed in human nervous system tumours**

Grizzi, F., Gaetani, P., Franceschini, B., Di Ieva, A., Colombo, P., Ceva-Gremaldi, G., Bollati, A., Frezza, E. E., Cobos, E., Rodriguez y Baena, R., Dioguardi, N. & Chiriva-Internati, M., 26 Jan 2006, In: BMC Cancer. 6, 23, p. 1-7 7 p.

Functional disability after instrumented stabilization in lumbar degenerative spondylolisthesis: A follow-up study  
Gaetani, P., Aimar, E., Panella, L., Levi, D., Tancioni, F., Di Ieva, A., Debernardi, A., Pisano, P. & Rodriguez y Baena, R., Jan 2006, In: Functional Neurology. 21, 1, p. 31-37 7 p.

Calvarial metastases as clinical presentation of renal cell carcinoma: Report of two cases and review of the literature  
Gaetani, P., Di Ieva, A., Colombo, P., Tancioni, F., Aimar, E., Debernardi, A. & Rodriguez Y Baena, R., Jun 2005, In: Clinical Neurology and Neurosurgery. 107, 4, p. 329-333 5 p.

Intradural spinal metastasis of renal clear cell carcinoma causing cauda equina syndrome  
Gaetani, P., Di Ieva, A., Colombo, P., Tancioni, F., Aimar, E., Debernardi, A. & Rodriguez Y Baena, R., Aug 2004, In: Acta Neurochirurgica. 146, 8, p. 857-861 5 p.

Arnold's neuralgia caused by solitary fibrous tumor: Case report  
Gaetani, P., Di Ieva, A., Di Rocco, M. G., Aimar, E., Debernardi, A., Tancioni, F. & Rodriguez Y Baena, R., Mar 2004, In: Journal of Neurosurgical Sciences. 48, 1, p. 49-53 5 p.

Meningeal melanocytoma of the temporal lobe. An uncommon tumor in an unusual location: Case report  
Aimar, E., Debernardi, A., Tancioni, F., Di Ieva, A., Bossi, P., Gaetani, P. & Rodriguez Y Baena, R., Dec 2003, In: Journal of Neurosurgical Sciences. 47, 4, p. 211-214 4 p.

## **Prizes**

**Aesculap EANS (European Association of Neurosurgical Societies) Laboratory Research Prize**  
Di Ieva, Antonio (Recipient), 9 Oct 2011

**Award 2011 Editor's Choice Section, Brain Anatomy & Physiology: "Best Paper of the year".**  
Di Ieva, Antonio (Recipient), 26 Jun 2011

**"Beniamino Guidetti" European Prize from the Italian Society of Neurosurgery (SINch)**  
Di Ieva, Antonio (Recipient), 26 Sept 2014

**First Prize for research in neuroscience from the Italian Society of Neurosurgery (SINch)**  
Di Ieva, Antonio (Recipient), 27 Oct 2010

**First Prize for scientific research, International Association of Lions Club**  
Di Ieva, Antonio (Recipient), 25 May 2005

**John Mitchell Crouch Fellowship**  
Di Ieva, Antonio (Recipient), 8 Aug 2018

## Awards

## Projects

**NHMRC - PG: Advanced computational fluid dynamic (CFD) technology to predict cerebrovascular aneurysm haemorrhage**  
Sen, I., Morgan, M., Mao, Y., Di Ieva, A., Javadzadegan, A., Yang, Q. & Zhu, F.  
1/01/19 → 31/12/23

**AI-Assisted Digital Histopathology Image Computing for Tumor Diagnosis**  
Liu, S., Song, Y., Di Ieva, A., Cong, T. & Jose, L.  
1/01/21 → 31/12/23

**An artificial intelligence platform for identifying how the brain perceives complex images**  
Di Ieva, A.  
11/02/20 → 31/12/20

**TGRC- BT: Attending the Gordon Research Conference on brain tumours**  
Guller, A. & Di Ieva, A.  
1/06/23 → 30/06/24

**Characterising the interactome of sequestosome-1 (p62) – the peacemaker between protein homeostasis and dysfunction**  
Davidson, J., Lee, A., Morsch, M., Richter, G., Di Ieva, A. & Rea, S.  
1/01/23 → 31/12/23

**Characterising the interactome of sequestosome-1/(p62) – the peacemaker between protein homeostasis and dysfunction**  
Davidson, J., Lee, A., Morsch, M., Richter, G., Rea, S. & Di Ieva, A.  
14/03/23 → 14/03/24

**CNS Lab Research Support**  
Di Ieva, A.  
25/10/23 → 24/10/24

**Computational Neurosurgery Fellowship**  
Di Ieva, A.  
30/09/21 → 29/09/22

**Computational Neurosurgery Lab**  
Di Ieva, A.  
1/01/19 → 31/12/20

**In search of relevant things: A novel approach for image analysis**

Di Ieva, A.

1/01/20 → 31/12/23

**TACIT: Tau And Connectomics In TES (The TACIT Study) - Pilot Phase 1 Clinical Trial of PET Tau Ligand PI 2620.**

Mobbs, R., Brown, E., Magnussen, J., Pardey, M., McIntosh, J., Batchelor, J., Savage, G., Lystad, R., Di Ieva, A. & Chung, R.

15/07/22 → 30/10/22

**The ACRF Centre for Advanced Cancer Modelling and Experimental Oncology (COMET)**

Rizos, H., Gurney, H., Shklovskaya, E., Long, G. V., Lee, J., Wang, Y., Di Ieva, A., Guller, A., Clarke AM, J. & Gupta, R.

1/01/24 → 31/12/30

**The Brain Donut**

Di Ieva, A.

1/12/17 → 31/12/18

**Visual search dynamics and image complexity in radiology**

Nalepka, P., Carrigan, A. & Di Ieva, A.

8/06/19 → 21/12/19