

Jérôme COSTE

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48 years old

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Formation and Degrees

2002-2006	PhD (Speciality Neurosciences)	Université d'Auvergne, Clermont 1.
1999-2000	Master 2: Cellular and Molecular Biology	Université J. Fourier, Grenoble 1.
1997-1999	Licence and Master 1 Cellular Biology and Physiology <i>Mention: Molecular Genetics and Cellular Biology</i>	Université J. Fourier, Grenoble 1.
1995-1997	DEUG Sciences	Centre scientifique Fourier, Valence.
1995	High School Diploma on Sciences Life Science and Geology	Lycée M. Gimond, Aubenas.

Others: Radiation protection (2020, 2025), Good clinical practice (2020, 24), Identity monitoring in the hospital (2018), Gesture and emergency care training (2017, 2021), Animal experimentation training (2005).

Current Position

Electrophysiologist, Engineer, permanent since **December 2011**, in the service of neurosurgery, University-Hospital of Clermont Ferrand.
Member of the core department Image Guided Therapies of the Institut Pascal, since **January 2017**.

Work Experience

2011 - 2016	Electrophysiologist, Engineer , in the laboratory <u>Image Guided Clinical Neuroscience and Connectomics</u> IGCNC, under the supervision of Pr Jean-Jacques LEMAIRE.
2007 - 2011	Electrophysiologist, Engineer , in the service of neurosurgery A and in the <u>Medical Imaging Research Team</u> ERIM, under the supervision of Pr Jean-Jacques LEMAIRE. ➤ Per operative electrophysiological recordings and analysis of neuronal activity during functional neurosurgery (deep brain stimulation and cortical stimulation) ➤ Development of repetitive transcranial magnetic stimulation (rTMS) under neuronavigation ➤ Participation, as electrophysiologist, to the clinical research trials involving the hospital ➤ Grant from the Fondation de l'Avenir : electrophysiological techniques to assist the localization and understanding of the pathophysiological mechanisms during the implantation of deep brain stimulation electrodes: conductivity measurement and local field potential
2002 - 2007	Assistant for clinical electrophysiology , in the service of Neurosurgery A (Clermont-Ferrand University Hospital). ➤ Electrophysiological recording and analysis of neuronal activity in the basal ganglia during implantation of deep brain stimulation electrodes for Parkinson's disease, obsessional compulsive disorders or patients with essential. ➤ Electrophysiology during cortical stimulation for patients with chronic pain
2002 - 2006	PhD (Neuroscience) in the laboratory Neurobiology of Trigeminal Pain INSERM U929 managed by Pr Radhouane DALLEL. Doctoral School of Life and Health Sciences. (Clermont1, Auvergne University). ➤ Subject: Function and mechanisms of the wind-up in nociceptive trigeminal neurons: role of NMDA receptors and NK1 receptors. Director: Pr Philippe LUCCARINI.
Nov 2001	Contract in the Molecular Electrophysiology Group , in the <u>Laboratory of Fundamental and Applied Biology</u> (Grenoble 1 University). ➤ Use of oxygen-sensor molecular probes developed in the laboratory. ➤ Cell culture (endothelial cells from human umbilical veins) ➤ Techniques of fluorescence microscopy, spectrofluorimetry.
Feb to Oct 2001	Military Service
Sept 99 to Nov 00	Master 2 training course: Molecular Electrophysiology Group. (Grenoble 1 University). ➤ Subject: Relations between metabolism and regulation of the intracellular oxygen partial pressure. Toward an intracellular mapping of oxygen, supervised by Dr Gilles FAURY. ➤ Study and characterization of oxygen sensitive molecular probes, cell culture, techniques of optical microscopy, confocal microscopy and fluorescence microscopy, spectrofluorimetry; bibliographic work and drafting of a scientific article.
March and May 97	Master 1 training course: Molecula Genetic of Plants Lab. (Grenoble 1 University). ➤ Characterization of the DAL mutant of Arabidopsis thaliana. ➤ Techniques of extraction and dosage of proteins, western blot, radiomarquage.

Electrophysiology and accelerometry

Publications

Bourgeois F., Pambakian N., Coste J., de Lange IJ., Lemaire J.-J., Schkommodau E., Hemm S. (2022) An online movement and tremor identification algorithm for evaluation during deep brain stimulation *Current Directions in Biomedical Engineering* **8(2)**, 105-108.

Shah A., Coste J., Lemaire J.-J., Taub E., Schüpbach M., Pollo C., Schkommodau E., Guzman R., Hemm-Ode S. (2017) Intraoperative acceleration measurements to quantify improvement in tremor during deep brain stimulation surgery. *Medical & Biological Engineering & Computing* **55(5)**, 845-858.

Shah A., Coste J., Lemaire J.-J., Schkommodau E., Taub E., Guzman R., Derost P., Hemm-Ode S. (2017) A novel assistive method for rigidity evaluation during deep brain stimulation surgery using acceleration sensors. *Journal of Neurosurgery* **127(3)**, 602-612.



Communications:

Bourgeois F., Pambakian N., Coste J., de Lange IJ., Lemaire J.-J., Schkommodau E., Hemm S. (Sept 28-30, 2022) A movement and tremor identification algorithm for evaluations during deep brain stimulation (Talk) - Joint Annual Conference of the Austrian, German and Swiss Societies for Biomedical Engineering (Innsbruck, Austria) *Biomedizinische Technik. Biomedical engineering* **67[Suppl 1]**, 137.

Shah A., Coste J., Lemaire J.-J., Schkommodau E., Taub E., Guzman R., Derost P., Hemm-Ode S. (Sept 22, 2017) A novel assistive method for rigidity evaluation during deep brain stimulation surgery using acceleration sensors (Talk) - 1st joint day Image Guided Therapies - TechMed (Clermont-Ferrand, France)

Shah A., Coste J., Lemaire J.-J., Taub E., Schüpbach M., Pollo C., Guzman R., Wardell K., Schkommodau E., Hemm-Ode S. (Sept 28-30, 2016) Intraoperative quantitative tremor evaluation in deep brain stimulation surgery (Poster) 22th Congress of the European Society for Stereotactic and Functional Neurosurgery (Madrid, Spain) *Stereotactic and Functional Neurosurgery* **94[Suppl 1]**, 100-101.

Shah A., Coste J., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (Sept 16-18, 2015) Use of quantitative tremor evaluation to enhance target selection during deep brain stimulation surgery for essential tremor (Talk and poster) - 49th annual conference of the German Society for Biomedical Engineering (Lübeck, Germany) *Current Directions in Biomedical Engineering* **1[1]**, 488-492.

Shah A., Coste J., Lemaire J.-J., Taub E., Guzman R., Schkommodau E., Hemm-Ode S. (Sept 10-11, 2015) Optimization of deep brain stimulation surgery for Parkinson's disease with quantitative rigidity evaluation (Poster) Joint annual meeting of the Swiss Societies of Neurosurgery and Neuroradiology (Lucerne, Switzerland)

Shah A., Coste J., Lemaire J.-J., Schkommodau E., Guzman R., Taub E., Hemm-Ode S. (April 22-24, 2015) Using acceleration sensors to identify rigidity release threshold during Deep Brain Stimulation surgery (Poster) - 7th international IEEE EMBS Conference on Neural Engineering (Montpellier, France)

Shah A., Coste J., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (Sept 17-20, 2014) Correlation analysis between quantitatively analyzed stimulation effects and anatomical position during deep brain stimulation surgery (Poster) - 21th Congress of the European Society for Stereotactic and Functional Neurosurgery (Maastricht, The Netherlands) *Stereotactic and Functional Neurosurgery* **92[S2]**, 167.

Shah A., Kaewmulpet C., Pontier B., Coste J., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (August 27-28, 2014) Quantitative evaluation of muscle tone using force and acceleration sensors (Poster) - Swiss Society for Biomedical Engineering 2014 Annual Meeting (Zurich, Switzerland)

Shah A., Coste J., Lemaire J.-J., Ulla M., Schkommodau E., Hemm-Ode S. (June 8-12, 2014) Acceleration measurements to quantify changes in rigidity during deep brain stimulation surgery (Poster) - 18th International Congress of Parkinson's Disease and Movement Disorders (Stockholm, Sweden) *Movement Disorders* **29[Suppl. 1]**, S30-S31.

Shah A., Coste J., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (Dec 8-11, 2013) Quantifying changes in patient tremor using accelerometer during deep brain stimulation surgery (Poster) - 20th World Congress on Parkinson's Disease and Related Disorders (Geneva, Switzerland)

Shah A., Coste J., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (Nov 6-8, 2013) A method to quantitatively evaluate changes in tremor during Deep Brain Stimulation surgery (Poster) - 6th international IEEE EMBS Conference on Neural Engineering (San Diego, USA)

Hemm-Ode S., Wettmann P., Kistler B., Schkommodau E., Coste J., Lemaire J.-J., Shah A. (Sept 19-21, 2013) Intraoperative optical flow based tremor evaluation - a feasibility study (Talk) - 47th annual conference of the German Society for Biomedical Engineering (Graz, Austria) *Biomedizinische Technik. Biomedical engineering* 58[Suppl 1-A], 4008.

Shah A., Coste J., Schkommodau E., Hemm-Ode S., Lemaire J.-J. (Sept 19-21, 2013) Using acceleration to quantify symptoms during deep brain stimulation surgery (Talk) - 47th annual conference of the German Society for Biomedical Engineering (Graz, Austria) *Biomedizinische Technik. Biomedical engineering* 58[Suppl 1-A], 4007.

Shah A., Coste J., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (June 26-29, 2013) A method to quantitatively evaluate tremor during deep brain stimulation surgery (Talk) – 27th International Congress and Exhibition, Computer Assisted Radiology and Surgery Associated Societies (Heidelberg, Germany) *International Journal of Computer Assisted Radiology and Surgery* 8[Suppl 1], S213-S214.

Shah A., Coste J., Ulla M., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (Sept 28-29, 2012) Acceleration measurements during DBS surgery for tremor (Poster) - 1st International Symposium on Deep Brain Connectomics (Clermont-Ferrand, France)

Shah A., Coste J., Gmünder D., Ulla M., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (Sept 26-29, 2012) Quantitative rigidity and tremor evaluation using accelerometer during deep brain stimulation surgery - a preliminary study (Poster) – 20th Congress of the European Society for Stereotactic and Functional Neurosurgery (Lisbon, Portugal) *Stereotactic and Functional Neurosurgery* 90[S1], 138.

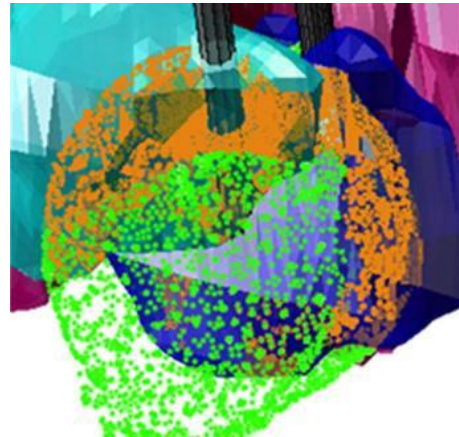
Hemm-Ode S., Shah A., Gmünder D., Ulla M., Lemaire J.-J., Coste J. (Sept 17-19, 2012) Quantitative rigidity evaluation during deep brain stimulation surgery - a preliminary study (Poster) - 46th annual conference of the German Society for Biomedical Engineering (Jena, Germany) *Biomedizinische Technik. Biomedical engineering* 57[Suppl 1-H], 698.

Hemm-Ode S., Gmünder D., Ulla M., Lemaire J.-J., Coste J. (Aug 22-23, 2011) Quantitative rigidity evaluation during deep brain stimulation surgery - A preliminary study. (Poster) – Swiss Society for Biomedical Engineering 2011 Annual Meeting. (Bern, Switzerland)

Publication

Shah A., Vogel D., Alonso F., Lemaire JJ., Pison D., Coste J., Wårdell K., Schkommodau E., Hemm S. (2020) Stimulation Maps: Visualization of results of quantitative intraoperative testing for deep brain stimulation surgery. *Medical & Biological Engineering & Computing* **58**(4), 771-784.

Hemm-Ode S., Pinson D., Alonso F., Shah A., Coste J., Lemaire J.-J., Wardell K. (2016) Patient-specific electric field simulations and acceleration measurements for objective analysis of intraoperative stimulation tests in the thalamus. *Frontiers in Human Neuroscience* **10**, 577.



Communications:

Bucciarelli V., Vogel D., Nordin T., Coste J., Lemaire J.-J., Wårdell K., Guzman R., Hemm S. (October 6-8, 2026) Can Intraoperative Therapeutic Window Data Predict Chronic Contact Selection in Deep Brain Stimulation? (Talk) - 60th Annual Conference of the German Society for Biomedical Engineering (Augsburg, Germany)

Bucciarelli V., Vogel D., Nordin T., Wårdell K., Coste J., Lemaire JJ., Guzman R., Hemm S. (May 9-14, 2026) Evaluating Intraoperative and Postoperative Probabilistic Sweet Spots Displacements in Deep Brain Stimulation for Essential Tremor (Poster) - 17th World Congress of the International Neuromodulation Society (Lisbon, Portugal)

Bucciarelli V., Vogel D., Nordin T., Stawiski M., Coste J., Lemaire J.-J., Wårdell K., Guzman R., Hemm S. (September 24-27, 2025) Refining electrode placement in Deep Brain Stimulation : hemispheric asymmetries for stimulation response in Essential Tremor (Poster) - 26th Congress of the European Society for Stereotactic and Functional Neurosurgery (Budapest, Hungary) *Stereotactic and Functional Neurosurgery* **103** [Suppl. 1].

Bucciarelli V., Vogel D., Nordin T., Stawiski M., Coste J., Lemaire J.-J., Wardell K., Guzman R., Hemm S. (September 9-11, 2025) Identifying key predictors of deep brain stimulation outcomes – A feature importance analysis (Poster) - Joint Annual Conference of the Austrian, German and Swiss Societies for Biomedical Engineering (Basel, Switzerland) *Biomedizinische Technik. Biomedical engineering* **70** [Suppl. 1], 233.

Bucciarelli V., Vogel D., Nordin T., Stawiski M., Coste J., Lemaire J.-J., Wardell K., Guzman R., Hemm S. (September 9-11, 2025) Predicting deep brain stimulation outcomes using intra-operative stimulation test data (Talk) - Joint Annual Conference of the Austrian, German and Swiss Societies for Biomedical Engineering (Basel, Switzerland) *Biomedizinische Technik. Biomedical engineering* **70** [Suppl. 1], 223.

Bucciarelli V., Vogel D., Nordin T., Stawiski M., Coste J., Lemaire J.-J., Wårdell K., Guzman R., Hemm S. (July 14-17, 2025) Optimizing Sample Size and Statistical Methods for Probabilistic Sweet Spot Mapping in Deep Brain Stimulation (Talk) - 47th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (Copenhagen, Denmark) *Annu Int Conf IEEE Eng Med Biol Soc.* 2025 **1-4**, 11251620.

Vogel D., Shah A., Alonso F., Lemaire J.-J., Coste J., Wårdell K., Hemm S. (September 26-29, 2018) Co-registering Thalamus for Analysis of Patient-specific Intra-operative Improvement Maps in DBS (Poster) - 23th Congress of the European Society for Stereotactic and Functional Neurosurgery (Edinburgh, Scotland)

Shah A., Alonso F., Vogel D., Wardell K., Coste J., Lemaire J.-J., Pison D., Hemm S. (July 17-21, 2018) Analysis of adverse effects of stimulation during DBS surgery by patient-specific FEM simulations (Poster) - 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (Honolulu, Hawaii) *40th Annual International Conference of the IEEE EMBC*, 2222-2225.

Shah A., Alonso F., Lemaire J.-J., Pison D., Coste J., Wårdell K., Schkommodau E., Hemm S. (June 26-29, 2017) Learning more about the optimal anatomical position for deep brain stimulation in essential tremor patients: 3d visualisation of intraoperative stimulation test results (Poster) – 17th Quadrennial Meeting of the World Society for Stereotactic and Functional Neurosurgery (Berlin, Germany) *Stereotactic and Functional Neurosurgery* **95**[S1], 186.

Shah A., Alonso F., Lemaire J.-J., Pison D., Coste J., Wårdell K., Schkommodau E., Hemm S. (June 12-15, 2017) 3D visualization of intraoperative stimulation test results in deep brain stimulation (Poster) – Joint conference of the European Medical and Biological Engineering Conference and the Nordic-Baltic Conference on Biomedical Engineering and Medical Physics (Tampere, Finland)

Shah A., Alonso F., Pison D., Lemaire J.-J., Wårdell K., Coste J., Schkommodau E., Hemm-Ode S (Oct 4-6, 2016) 3D Visualization of intraoperative stimulation test results for better target selection in DBS surgery (Poster) - Meeting of the Swiss, Austrian and German Societies of Biomedical Engineering (Bâle, Suisse) *Biomedizinische Technik. Biomedical engineering* **61**[Suppl 1-U], S243.

Shah A., Alonso F., Lemaire J.-J., Wardell K., Pison D., Coste J., Schkommodau E., Hemm-Ode S. (Sept 28-30, 2016) Improving DBS targeting using 3D visualization of intraoperative stimulation tests (Poster) 22th Congress of the European Society for Stereotactic and Functional Neurosurgery (Madrid, Spain) *Stereotactic and Functional Neurosurgery* **94**[Suppl 1], 101.

Pison D., Alonso F., Wardell K., Shah A., Coste J., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (June 7-12, 2015) A method for side effect analysis based on electric field simulations for intraoperative test stimulation in deep brain stimulation surgery (Talk) - IUPESM World Congress on Medical Physics and Biomedical Engineering (Toronto, Canada)

Pison D., Alonso F., Wardell K., Shah A., Coste J., Lemaire J.-J., Schkommodau E., Hemm-Ode S. (April 22-24, 2015) A method for electric field simulations and acceleration measurements for intraoperative test stimulation (Poster) - 7th international IEEE EMBS Conference on Neural Engineering (Montpellier, France)

Hemm-Ode S., Pison D., Alonso F., Shah A., Coste J., Lemaire J.-J., Schkommodau E., Wardell K. (Sept 17-20, 2014) A method for electric field simulations and acceleration measurements for intraoperative test stimulation (Poster) – 21th Congress of the European Society for Stereotactic and Functional Neurosurgery (Maastricht, The Netherlands) *Stereotactic and Functional Neurosurgery* **92**[S2], 153.

Hemm-Ode S., Alonso F., Pison D., Shah A., Coste J., Lemaire J.-J., Wardell K. (May 15-16, 2014) Patient-specific electric field simulations and acceleration measurements for intraoperative test-stimulations (Talk) - 1st IMPACT Workshop and 7th NeuroTech Workshop (Linköping, Sweden)

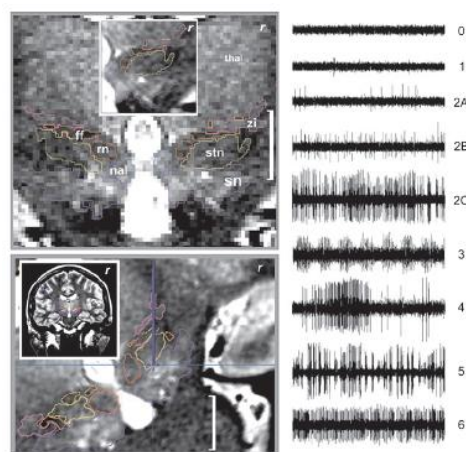
Electrophysiology and Deep Brain Stimulation

Publication

Coste J., Ouchchane L., Sarry L., Derost P., Durif F., Gabrillargues J., Hemm S., Lemaire J.-J. (2009) New Electrophysiologic Mapping Combined with MRI in Parkinsonian's Subthalamic Region. *European Journal of Neuroscience* **29**[8], 1627-1633.

Communications:

Coste J., Derost P., Mulliez A., Gabrillargues J., Pereira B., Lemaire J.-J. (Dec 8-11, 2013) Contribution of local field potential to subthalamic nucleus deep brain stimulation in Parkinson's disease (e-Poster) - 20th World Congress on Parkinson's Disease and Related Disorders (Geneva, Switzerland)



Coste J., Derost P., Mulliez A., Gabrillargues J., Pereira B., Lemaire J.-J. (Sept 28-29, 2012) Contribution of local field potential to subthalamic nucleus deep brain stimulation in Parkinson's disease (Poster) - 1st International Symposium on Deep Brain Connectomics (Clermont-Ferrand, France)

Coste J., Perret C., Lemaire J.-J. (Dec 5-8, 2010) Etude de la Production Verbale Orale chez les patients parkinsoniens : corrélations entre Activité Neuronale de Structures sous-thalamiques et Dénomination d'Images. (Talk) - Réunion de la Société de Neurochirurgie de Langue Française. (Paris, France) *Neurochirurgie* **56**[6] 546.

Perret C., Coste J., Lemaire J.-J. (Aug 27-Sept 1, 2010) Electrophysiological correlates from the subthalamic region for the performance of simple speech sequences. (Poster) – 11th International Science of Aphasia

Conference (Potsdam, Germany)

Coste J., Ouchchane L., Derost P., Ulla M., Durif F., Gabrillargues J., Hemm S., Sarry L., Lemaire J.-J. (Nov 25-28, 2007) Relations entre anatomie IRM et électrophysiologie dans la région sous-thalamique lors de l'implantation d'électrodes de stimulation cérébrale profonde pour maladie de Parkinson idiopathique sévère. (Talk) - Réunion de la Société de Neurochirurgie de Langue Française. (Paris, France) *Neurochirurgie* **53**[5] 418-419.

Coste J., Hemm S., Ulla M., Derost P., Caire F., Durif F., Lemaire J.-J. (Nov 23, 2006) Somatotopie observée dans le GPi : analyse d'effets moteurs indésirables au cours d'une stimulation cérébrale profonde chez un patient parkinsonien (Poster) – Journée de la Recherche. (Clermont Ferrand, France)

Coste J., Siadoux S., Derost P., Durif F., Gabrillargues J., Hemm S., Lemaire J.-J. (Oct 4-7, 2006) Relationships between MRI anatomy and electrophysiological spontaneous unitary recordings in the subthalamic region during stereotactic surgery for Severe Idiopathic Parkinson's disease. (Talk) – XVIIth Congress of the European Society for Stereotactic and Functional Neurosurgery. (Montreux, Switzerland) *Acta Neurochirurgica* **148**[10], I-LXIV.

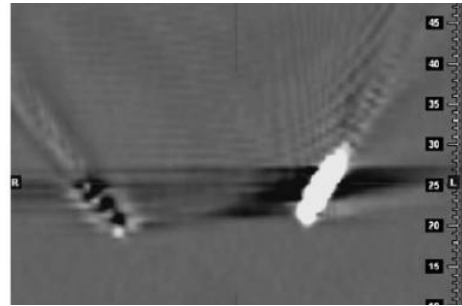
Coste J., Hemm S., Ulla M., Derost P., Caire F., Durif F., Lemaire J.-J. (Oct 4-7, 2006) Somatotopy in the GPi: analysis of motor side effects during intraoperative assessment in a parkinsonian. (Poster) – XVIIth Congress of the European Society for Stereotactic and Functional Neurosurgery. (Montreux, Switzerland) *Acta Neurochirurgica* **148**[10], I-LXIV LVIII.

Post-operative Imagery and Deep Brain Stimulation

Publications:

Chaix R., Vogel D., Debilly B., Coste J., Wårdell K., Bucciarelli V., Nordin T., Hemm S., Lemaire JJ. (2026) Uncoupled dual stimulation for delayed-escape essential tremor case report and literature review *Interdisciplinary Neurosurgery- Advanced Techniques and Case Management* **45**, 102310.

El Ouadih Y., Marques A., Pereira B., Luisoni M., Claise B., Coste J., Sontheimer A., Chaix R., Debilly B., Derost P., Morand D., Durif F., Lemaire JJ. (2023) Deep brain stimulation of the subthalamic nucleus in severe parkinson's disease: relationships between dual-contact topographic setting and 1-year worsening of speech and gait *Acta Neurochirurgica* **165**(12), 3927-3941.



Chapelle F., Manciet L., Pereira B., Sontheimer A., Coste J., El Ouadih Y., Cimpeanu R., Gouot D., Lapusta Y., Claise B., Sautou V., Bouattour Y., Marques A., Wohrer A., Lemaire JJ. (2021) Early deformation of deep brain stimulation electrodes following surgical implantation: intracranial, brain and electrode mechanics *Frontiers in Bioengineering and Biotechnology* **9**, 657875.

Pontier B., Sontheimer A., Coste J., El Ouadih Y., Briancon AM., Millet G., Pantera E., Sarret C., Lemaire JJ. (2021) Neural correlates of rehabilitation program with robot-assisted intensive therapy in one case of Holmes tremor *Annals of Physical and Rehabilitation Medicine* **64**(4), 101411.

de Schlichting E., Coll G., Zaldivar-Jolissaint JF., Coste J., Marques AR., Mulliez A., Durif F., Lemaire JJ. (2019) Pulse generator battery life in deep brain stimulation: out with the old... in with the less durable? *Acta Neurochirurgica* **161**(10), 2043-2046.

Lemaire J.-J., Pereira B., Derost P., Vassal F., Ulla M., Morand D., Coll G., Gabrillargues J., Marques A., Debilly B., Coste J., Durif F. (2016) Subthalamus stimulation in Parkinson's Disease: accounting for the bilaterality of contacts. *Surgical Neurology International* **7**[Suppl 35], S837-S847.

Mendes Martins V., Coste J., Derost P., Ulla M., Gabrillargues J., Durif F., Lemaire J.-J. (2012) [Surgical complications of deep brain stimulation: Clinical experience of 184 cases]. *Neurochirurgie* **58**[4], 219-224. (Article in French)

Hemm S., Coste J., Gabrillargues J., Ouchchane L., Sarry L., Caire F., Vassal F., Nuti C., Derost P., Durif F., Lemaire J.-J. (2009) Contact position analysis of deep brain stimulation electrodes on postoperative CT images. *Acta Neurochirurgica* **151**[7], 823-829.

Hemm S., Caire F., Coste J., Vassal F., Nuti C., Derost P., Ouchchane L., Sarry L., Durif F., Lemaire J.-J. (2008) Postoperative Control in Deep Brain Stimulation of the Subthalamic Region: The Contact Membership Concept. *International Journal of Computer Assisted Radiology and Surgery* **3**[1-2], 69-77.

Caire F., Derost P., Coste J., Bony J.-M., Durif F., Frenoux E., Villéger A., Lemaire J.-J. (2006) [Subthalamic deep brain stimulation for severe idiopathic Parkinson's disease. Location study of the effective contacts]. *Neurochirurgie* **52**[1], 15-25. (Article in French)

Communications:

De Schlichting E., Marques A.-R., Mulliez A., Gampourou F., Derost P., Debilly B., Coste J., Coll G., Durif F., Lemaire J.-J. (June 26-29, 2017) Learning more about the optimal anatomical position for deep brain stimulation in essential tremor patients: 3d visualisation of intraoperative stimulation test results (Talk) – 17th Quadrennial Meeting of the World Society for Stereotactic and Functional Neurosurgery (Berlin, Germany) *Stereotactic and Functional Neurosurgery* **95**[S1], 130.

Lemaire J.-J., Pereira B., Derost P., Coste J., Ulla M., Morand D., Gabrillargues J., Coll G., Durif F. (Nov 25-27, 2013) Etude rétrospective de la localisation des contacts effectifs sous-thalamiques chez 53 parkinsoniens sévères: Analyse des couples de contacts par une approche unifiée (droit-gauche) et indépendante (droit et gauche). (Talk) - Réunion de la Société de Neurochirurgie de Langue Française. (Versailles, France) *Neurochirurgie* **59**[6], 231.

Saliege M., Boyer-grand A., Lemaire J.-J., Chopineau J., Sautou V., Gabrillargues J., Coste A., Sakka L., Coste J., Tixier F., Martin C., Achim V. (Oct 21-23, 2010) Agarose Gels: Model of artificial brain in neurosurgery (Poster) - 39th European Symposium on Clinical Pharmacy, European Society of Clinical Pharmacy (Lyon, France) *International Journal of Clinical Pharmacy* **33**[2], 465-466.

Mendes Martins V., Coste J., Derost P., Ulla M., Durif F., Gabrillargues J., Ouchchane L., Sakka L., Chazal J., Coste A., Coll G., Lemaire J.-J. (May 26-29, 2010) Relations entre positions des contacts droit et gauche par rapport au noyau sous thalamique, dysarthrie et chutes : effet de la symétrie des montages utilisés en stimulation chronique sous-thalamique dans la maladie de Parkinson idiopathique. (Talk) - Congrès de la Société de Neurochirurgie de Langue Française. (Lyon, France)

Mendes Martins V., Coste J., Derost P., Ulla M., Durif F., Marques A., Gabrillargues J., Chabert E., Claise B., Sakka L., Khalil T., Coste A., Coll G., Chazal J., Lemaire J.-J. (May 26-29, 2010) Stimulation cérébrale profonde : évènements indésirables au cours de 184 procédures (Talk) - Congrès de la Société de Neurochirurgie de Langue Française (Lyon, France)

Schönfisch S., Hemm S., Sarry L., Saingery M., Coste J., Gabrillargues J., Lemaire J.-J. (Sept 26-29, 2007) Analysis of deep brain stimulation electrodes: A semi-automatic approach of contact localization (Poster) – Deutsche Gesellschaft für Biomedizinische Technik im VDE. (Aachen, Germany)

Caire F., Coste J., Gabrillargues J., Chabert E., Claise B., Derost P., Lemaire J.-J. (Nov 28-30, 2005) Stimulation cérébrale profonde et déplacement d'électrode : évaluation à moyen terme (Poster) - Réunion de la Société de Neurochirurgie de Langue Française (Paris, France) *Neurochirurgie* **51**[5], 546.

Caire F., Derost P., Coste J., Durif F., Frenoux E., Lemaire J.-J. (May 7-11, 2005) Deep Brain Stimulation for Parkinson's disease: Anatomical Location of Effective Contacts in the Subthalamic Area. (Talk) – 3rd French days of the Société Française de NeuroChirurgie, with Deutschen Gesellschaft für NeuroChirurgie. (Strasbourg, France)

Caire F., Derost P., Coste J., Durif F., Frenoux E., Lemaire J.-J. (June 23-26, 2004) Deep Brain Stimulation for Parkinson's Disease: Anatomical Location of Effective Contacts in the Sub Thalamic Area. (Talk) – XVIth Congress of the European Society for Stereotactic and Functional Neurosurgery. (Vienna, Austria)

Books, books chapters:

Lemaire J.-J., Sontheimer A., Coll G., Sarret C., Nezzar H., Rosenberg S., Pontier B., Coste J., Feschet F., Wohrer A., De Schlichting E., Sakka L., Lubrano V. (2017) The Brainstem and Cerebral Activation. Chapter in: *The Brainstem and Behavior*. **Robert Lalonde (Ed.), Nova Science Publishers**, chapter 2. ISBN:978-1-53612-845-1

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Repetitive Transcranial Magnetic Stimulation

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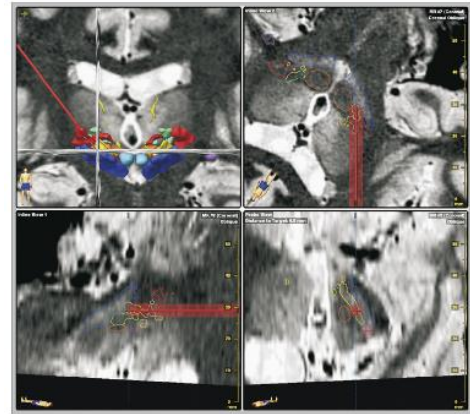
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Bucciarelli V., Vogel D., Stawiski M., Nordin T., Wårdell K., Coste J., Lemaire JJ., Hemm S. (Nov 7-8, 2024) Exploring the impact of statistical methods for defining "sweet spots" in Deep Brain Stimulation (Poster) - 11th Neuro-Engineering Workshop (Linköping, Sweden)

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Bucciarelli V., Vogel D., Nordin T., Wårdell K., Coste J., Lemaire J.-J., Guzman R., Hemm S. (June 9-13, 2024) Exploring the impact of data and statistical methods for defining sweet spots in Deep Brain Stimulation. (Poster) - 9th European Medical and Biological Engineering Conference EMBEC (Portorož, Slovenia)

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Vogel D., Shah A., Coste J., Lemaire J.-J., Wårdell K., Hemm S. ([Sept 25, 2020](#)) Anatomical Brain Structures Normalization for Deep Brain Stimulation in Movement Disorders (Talk) - 4ème journée conjointe TGI TechMed (Clermont-Ferrand, France)

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Nezzar H., Mbekeani J. N., Tardif A., Sontheimer A., Coste J., Chiambaretta F., Lemaire J.-J. ([May 1-5, 2016](#)) In vivo Mapping and Comparative Analysis of Human Saccadic Eye Movement Pathways by Diffusion Tensor MRI-based Tractography (Poster) - 2016 ARVO Annual Meeting (Seattle, Washington) *Investigative Ophthalmology & Visual Science* **57**[12], 1672.

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Mendes-Martins V., Coll G., Botella C., Coste J., Gabrillargues J., Lemaire J.-J. ([Nov 28-30, 2011](#)) Analyse morphométrique du noyau sous-thalamique en imagerie par résonance magnétique nucléaire à 1.5 Tesla (Talk) - Réunion de la Société de Neurochirurgie de Langue Française. (Paris, France) *Neurochirurgie* **57**[4-6], 276.

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Obsessive Compulsive Disorder

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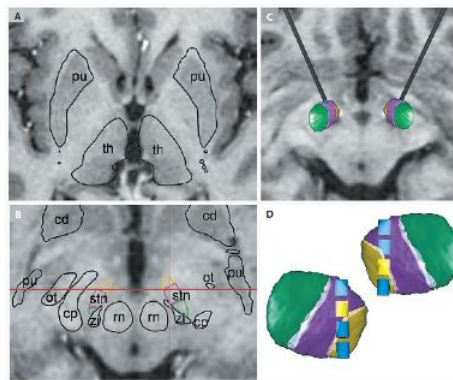
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Burbaud P., Welter M.-L., Goillandeau M., Clair A.-L., Sauleau P., Simonetta-Moreau M., Chabardès S., Besnard S., Magnié-Mauro H., Coste J., Mallet L. (June 7-11, 2009) Integrative function of single neurons in the human subthalamic nucleus during checking behavior (Poster) – 13th International Congress of Parkinsons Disease and Movement Disorders (Paris, France)

Welter M.-L., Burbaud P., Clair A.-H., Bastian A., Bardinet E., Fernandez-Vidal S., Sauleau P., Simonetta-Moreau M., Besnard S., Pidoux B., Coste J., Yelnik J., Mallet L.; STOC Study Group. (June 7-11, 2009) Subthalamic neuronal activity in patients with obsessive compulsive disorders or Parkinson's disease (Poster) – 13th International Congress of Parkinsons Disease and Movement Disorders (Paris, France)

Disorders of consciousness and Deep Brain Stimulation

Publication:

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Coste J., Pontier B., Sontheimer A., Lemaire J.-J., DBS-Post-Coma Study group (Sept 8-11, 2021) Intraoperative electrophysiology during deep brain surgeries in disorders of consciousness (ePoster) - 24th Congress of the European Society for Stereotactic and Functional Neurosurgery (Marseille, France) *Stereotactic and Functional Neurosurgery* **99**[Suppl.1], 23424.

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Lemaire J.-J., Sontheimer A., Pereira B., Rosenberg S., Sarret C., Coll G., Gabrillargues J., Jean B., Gillart T., Coste J., Roche B., Kelly A., Pontier B., Feschet F. (Nov 9, 2018) Comportements conscients après stimulation cérébrale profonde chez cinq patients souffrant de troubles de la conscience sévères (Talk) - Colloque 2018, France Traumatisme Crânien, Association nationale des professionnels au service des traumatisés crâniens (Paris, France)

Lemaire J.-J., Sontheimer A., Pontier B., Coste J., Gillart T., Gabrillargues J., Feschet F., Pereira B. (Feb 8-9, 2018) Conscious behaviors and deep brain stimulation (Talk) - 3rd DBS and 9th Neuro-Engineering Workshop (Linköping, Sweden)

Lemaire J.-J., Sontheimer A., Pereira B., Coste J., Rosenberg S., Sarret C., Coll G., Gabrillargues J., Jean B., Gillart T., Coste A., Roche B., Kelly A., Pontier B., Feschet F. (Sept 22, 2017) Conscious behaviors following bilateral pallido-thalamic low frequency stimulation in patients with continuing disorders of consciousness (Talk) - 1st joint day Image Guided Therapies (Clermont-Ferrand, France)

Lemaire J.-J., Sontheimer A., Pontier B., Coste J., Gillart T., Gabrillargues J., Feschet F., Pereira B. (June 26-29, 2017) Conscious Behaviors Following Bilateral Pallido-Thalamic Low Frequency Stimulation in Patients with Continuing Disorders of Consciousness (Talk) – 17th Quadrennial Meeting of the World Society for Stereotactic and Functional Neurosurgery (Berlin, Germany) *Stereotactic and Functional Neurosurgery* **95**[S1], 2.

Lemaire J.-J., Pontier B., Sontheimer A., Feschet F., Coste J., Nezzar H., De Schlichting E., Luaute J., Sarraf T., Sarret C., Coll G., Rosenberg S., Gabrillargues J. (Sept 28-30, 2016) Chronic DBS stimulation of minimally



conscious state: methodological issues. (Talk) 22th Congress of the European Society for Stereotactic and Functional Neurosurgery (Madrid, Spain) *Stereotactic and Functional Neurosurgery* **94**[Suppl 1], 41.

Lemaire J.-J., Sontheimer A., Nezzar H., Pontier B., Luauté J., Roche B., Gillart T., Gabrillargues J., Rosenberg S., Sarret C., Feschet F., Vassal F., Fontaine D., Coste J. (Nov 21-22, 2013) Electrical modulation of neuronal networks in brain-injured patients with disorders of consciousness: a systematic review. (Talk) - 35èmes journées de l'Association de Neuro-Anesthésie Réanimation de Langue Française. (Paris, France)

Sontheimer A., Pontier B., Coste J., Roche B., Gillart T., Gabrillargues J., Lemaire J.-J. (Sept 28-29, 2012) Selective cerebral response to autobiographical memory in the persistent vegetative state: a fMRI case study (Poster) - 1st International Symposium on Deep Brain Connectomics (Clermont-Ferrand, France)

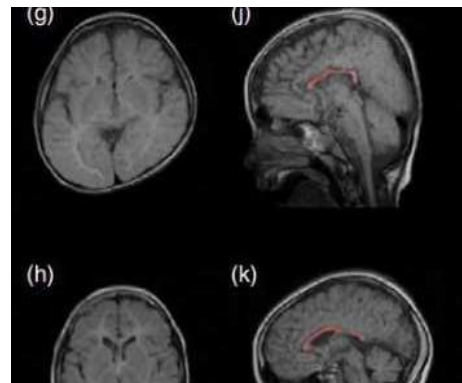
Lemaire J.-J., Pontier B., Coste J., Gillart T., Sakka L., Feschet F., Gabrillargues J., Coudeyre E., Luauté J. (Oct 15, 2011) Comportements conscients après cérébro-lésions : Support anatomo-fonctionnel et perspectives thérapeutiques (Talk) – 26ème Congrès de la SOFMER (Nantes, France)

White matter disorders and neuropaediatrics

Publication:

Sarret C., Lemaire JJ., Sontheimer A., Coste J., Savy N., Pereira B., Roche B., Boespflug-Tanguy O. (2018) Brain diffusion imaging and tractography to distinguish clinical severity of PLP1-related disorders. *Developmental Neuroscience* **40**[4], 301-311.

Sarret C., Lemaire JJ., Tonduti D., Sontheimer A., Coste J., Pereira B., Feschet F., Roche B., Boespflug-Tanguy O. (2016) Time-course of myelination and atrophy on cerebral imaging in 35 patients with PLP1-related disorders. *Developmental Medicine and Child Neurology* **58**[7], 706-713.



Communications:

Sarret C., Lemaire J.-J., Sontheimer A., Coste J., Savy N., Pereira B., Roche B., Boespflug-Tanguy O. (September 21, 2018) Brain diffusion imaging and tractography to distinguish clinical severity of human PLP1-related disorders (Talk) -2nd joint day Image Guided Therapies (Clermont-Ferrand, France)

Sarret C., Lemaire J.-J., Sontheimer A., Coste J., Pereira B., Roche B., Renou J.-P., Boespflug-Tanguy O. (June 20-24, 2017) Cerebral quantitative DTI and tractography in 25 patients with PLP1-related disorders (Poster) – 12th European Paediatric Neurology Society Congress (Lyon, France) *European Journal of Paediatric Neurology* **21**[Suppl. 1],.

Sarret C., Lemaire J.-J., Sontheimer A., Coste J., Pereira B., Feschet F., Roche B., Boespflug-Tanguy O. (Sept 3-6, 2014) L'atrophie cérébrale est liée à la gravité clinique et s'aggrave au cours du temps chez les patients porteurs de maladie de Pelizaeus-Merzbacher et paraplégie spastique de type 2 (Talk) – 42ème Congrès de la Société Européenne de Neurologie Pédiatrique, in conjunction with the 20th Mediterranean Meeting of Child Neurology (Montpellier, France) *International Journal of Developmental Neuroscience* **47**[Pt A], 90.

Wind-up of Trigeminal Neurons

PhD Thesis:

Coste J. (2006) Function and mechanisms of the wind-up in nociceptive trigeminal neurons: role of NMDA receptors and NK1 receptors

Publications:

Coste J., Voisin D. L., Luccarini P., Dallel R. (2008) A role for windup in trigeminal sensory processing: intensity coding of nociceptive stimuli in the rat. *Cephalalgia* **28**[6], 631-639.

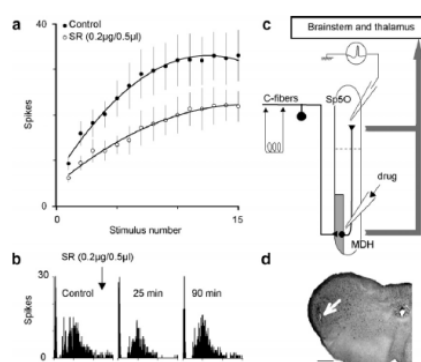
Coste J., Voisin D. L., Miraucourt L., Dallel R., Luccarini P. (2008) Dorsal horn NK1-expressing neurons control windup of downstream trigeminal nociceptive neurons. *Pain* **137**[2], 340-351.

Woda A., Blanc O., Voisin D. L., Coste J., Molat J.-L., Luccarini P. (2004) Bidirectional modulation of windup by NMDA receptors in the rat spinal trigeminal nucleus. *European Journal of Neuroscience* **19**, 2009-2016.

Communications:

Coste J., Luccarini P. (March 2-3, 2004) Mécanismes d'amplification des messages nociceptifs dans le complexe sensitif du trijumeau chez le rat : approche électrophysiologique. (Talk) – Journées de l'Ecole Doctorale des Sciences de la Vie et de la Santé de l'Université d'Auvergne. (Clermont Ferrand, France)

Coste J., Voisin D. L., Luccarini P., Chalus M., Dallel R. (May 13-16, 2003) L'activation des récepteurs aux neurokinines du sous-noyau caudal du noyau spinal du trijumeau par la substance P facilite le windup des neurones à convergence du sous-noyau oral. (Poster) - 6ème Colloque de la Société des Neurosciences (Rouen, France)

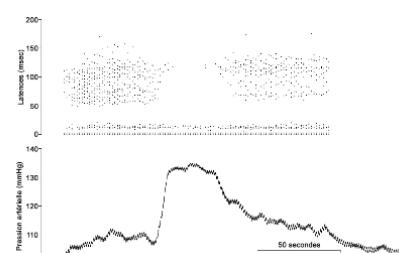


Diffuse Noxious Inhibitory Controls of Trigeminal Neurons

Communications:

Roca-Lapirot O., Coste J., Dallel R., Luccarini P. (Nov 23, 2006) Diffuse noxious inhibitory controls depend on arterial blood pressure in the anaesthetized rat (Poster) – Journée de la Recherche. (Clermont Ferrand, France)

Coste J., Dallel R., Luccarini P. (May 17-20, 2005) Lack of effect of diffuse noxious inhibitory controls triggered by cold on trigeminal convergent neurons in the anaesthetized rat. (Poster) - 7ème Colloque de la Société des Neurosciences. (Lille, France)



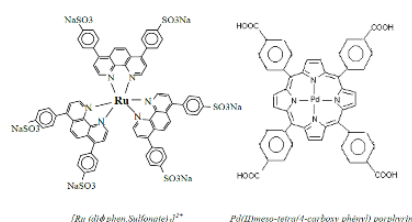
Intracellular oxygen tension

Master of Science:

Coste J. (2000) Relations between metabolism and regulation of the intracellular oxygen partial pressure. Toward an intracellular mapping of oxygen.

Publication:

Coste J., Vial J.-C., Faury G., Deronzier A., Usson Y., Robert-Nicoud M., Verdetti J. (2002) NO synthesis, unlike respiration, influences intracellular oxygen tension. *Biochemical and Biophysical Research Communications* **290**, 97-104.



Reviewing for international scientific journals:

Sensors IF₂₀₁₉: 3.275 (2 en 2019; 2021), *Applied Sciences* IF₂₀₂₀: 2.679 (2020), *Healthcare* IF₂₀₂₀: 2.645 (2020), *Symmetry* IF₂₀₂₀: 2.713 (2020), *Actuators* IF₂₀₂₁: 2.523 (2021), *Brain Sciences* IF₂₀₂₁: 3.333 (2021; 2023), *International Journal of Environmental Research and Public Health* IF₂₀₂₁: 4.614 (2021), *Medicina* IF₂₀₂₂: 2.6 (2022), *Biosensors* IF₂₀₂₂: 5.4 (2023), *Diagnostics* IF₂₀₂₂: 3.6 (2023), *Life* IF₂₀₂₂: 3.2 (2023).

Supervision:

- 2023: Institute for Medical and Analytical Technologies, 3rd year “Development and characterization of an electromagnetic tracking system : Application to deep brain stimulation surgery. Integration exemple. Bachelor thesis at the University of Applied Sciences Northwestern Switzerland. Technique: Informatics and navigation applied to neurosurgery (1 student, April 2023 to July 2023)”
- 2022: Institute for Medical and Analytical Technologies, 5th year “Development and implementation of a concept for automatic patient-specific Deep Brain Stimulation parameter identification. Master 2 thesis at the University of Applied Sciences Northwestern Switzerland. Technique: deep brain stimulation and medical images analysis (1 student, August 2021 to August 2022)”
- 2021: Institute for Medical and Analytical Technologies, 3rd year “Comparison between different stereotactic atlases. Bachelor thesis at the University of Applied Sciences Northwestern Switzerland. Technique: deep brain stimulation and clinical electrophysiology analysis (1 student, March 2021 to August 2021)”
- 2020: Institute for Medical and Analytical Technologies, 3rd year “Correlation analysis of passive movements and neuron activity during implantation of electrodes for deep brain stimulation. Bachelor thesis at the University of Applied Sciences Northwestern Switzerland. Technique: deep brain stimulation and medical images analysis (1 student, April 2020 to July 2020)”
- 2019: Institute for Medical and Analytical Technologies, 3rd year “Definition of an asymmetry index to classify electrode contacts position in Deep Brain Stimulation. Bachelor thesis at the University of Applied Sciences Northwestern Switzerland. Technique: deep brain stimulation and medical images analysis (1 student, April 2019 to July 2019)”
- 2018: University Institute of Technology “Deep Brain Stimulation. Tutored project at the DUT Génie biologique, Université Clermont Auvergne (4 students, October 2018 to December 2018)”
- 2011: Institute for Medical and Analytical Technologies, 3rd year “Development of the concept of the intraoperative acceleration measurements. Bachelor thesis at the University of Applied Sciences Northwestern Switzerland. Technique: clinical electrophysiology and accelerometry (1 student, April 2011 to July 2011)”
- 2007: Electroradiography Medical School, 3rd year “Deep Brain Stimulation and electroradiography practice (4 students, July 2007 to February 2008)”
- 2005: Medicine DCEM2 Master 1, Génétique et Physiologie spécialité Neurosciences “Inhibition de la douleur trigéminal par une stimulation hétérotopique viscérale. Technique: extracellular electrophysiology and visceral pain. (1 student, June to July 2005)”
- 2004: Odontology DCED3 Master 1, Génétique et Physiologie spécialité Neurosciences “Rôle des récepteurs NMDA dans les mécanismes du wind-up des neurones nociceptifs trigéminaux chez le rat. Technique: extracellular electrophysiology. (1 student, June to July 2004)”

Teaching:

- 2014/2016, 2015/2017, 2016/2018, 2017/2019, 2018/2020, 2019/2021, 2020/2022, 2021/2023, 2022/2024, 2023/2025, 2024/2026 and 2025/2027: Course « Deep Brain Electrophysiology in Functional Neurosurgery » school of nurse in operating room (2h/year), School of nurse in operating room, Clermont-Ferrand
- 2013/2014, 2014/2015, 2015/2016, 2016/2017, 2017/2018, 2018/2019, 2019/2020, 2020/2021, 2021/2022, 2022/2023, 2023/2024, 2024/2025 and 2025/2026:

Course « Electrophysiology in Functional Neurosurgery » school of radiographer technician (4h/year) 2nd year of radiographer technician, School of radiographer technician, Clermont-Ferrand

- 2011/2012, 2012/2013, 2013/2014, 2014/2015, 2015/2016, 2016/2017, 2017/2018, 2018/2019, 2019/2020, 2020/2021, 2021/2022, 2022/2023, 2023/2024, 2024/2025 and 2025/2026:

Course «Anatomo-electrophysiological correlation» (1h30/year) Master 2, Biology & Health, Surgical sciences, Neurosciences, Paris-Est and Paris-Sud Universities

- 2011: Course «Clinical electrophysiology» Diplôme de Compétences Etendues, Image Guided Stereotaxy: MRI and Subthalamus, from theory to clinical practice, (1h/year), Clermont-Ferrand University Hospital (Clermont-Ferrand, France)

- 2009/2010, 2010/2011, 2011/2012, 2012/2013, 2013/2014, 2014/2015, 2015/2016, 2016/2017, 2017/2018, 2018/2019, 2019/2020, 2020/2021, 2021/2022, 2022/2023, 2023/2024, 2024/2025 and 2025/2026:

Course «Clinical electrophysiology» (3h/year) Master 2, Technology for Medicine, Auvergne University then University Clermont Auvergne (Clermont-Ferrand, France)

- 2005/2006: Pratical Experience: Animal Physiology, 1st year (24h), department of Biology, IUT Clermont, Auvergne University (Clermont-Ferrand, France)