Javier CEBEIRO

Lecturer

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29/12/1982

EDUCATION

Ph D in Engineering, *Signal and Image Processing (2013-2017).*
Universidad Tecnológica Nacional, Facultad Regional de Buenos Aires.
Buenos Aires, Argentina.
Thesis title: Filtered Back-projection: new algorithm for image reconstruction from scatter radiation
Defended: February 2017.
Supervisor: Dr Marcela A. Morvidone
Co-Supervisor: Dr Diana Rubio
Co-Supervisor: Dr Mai K. Nguyen (France)

Biomedical Engineer (2003-2009).
Universidad Favaloro, Facultad de Ingeniería, Ciencias Exactas y Naturales.
Buenos Aires, Argentina.
Master degree project: Measurement of the anaesthetic depth through spectral analysis of the EEG signal
Supervisor: Dr Damian Craiem

FOREIGN LANGUAGES

English: First Certificate Examination (B2), ESOL, University of Cambridge, 2011.
French: DELF (B1) (Diplôme d'Études en Langue Française, Ministère de l'Éducation Nationale, de l'Enseignement supérieur et de la Recherche, République Française), 2015.

EMPLOYMENT

Current

Universidad Nacional de San Martín, School of Science (ECyT-UNSAM).
Lecturer (Part-time, since 2017).

Universidad Nacional de San Martín, Center of Applied Mathematics (CEDEMA)
CONICET Post-doc grant (2017-2019).
Research topic: Study of reconstruction algorithms for the Transmission Compton Scattering Tomography

Former

Universidad Nacional de San Martín, Center of Applied Mathematics (CEDEMA)
CONICET Ph D grant (2013-2017).
Research topic: Study of algorithms for image reconstruction from scatter radiation

Universidad Nacional de San Martín, School of Science (ECyT-UNSAM).
Assistant teacher (Part-time, period: 2012-2016).

National Paediatric Hospital, Prof. Dr. Juan P. Garrahan SAMIC:
Clinical Engineering Department.
Period: 2008- 2012.

COMPUTING SKILLS

Operating Systems: DOS, Windows and Linux. Microsoft Office and Open Office. Applications: Word processors (Word, Writer, LaTex), Excel, Calc, Access, Outlook, Macros, etc. Programming Languages: C, C++, Borland Builder C++, Assembler, Matlab, Simulink, Language R, Visual Basic, QT C++ for Linux, Mac and Windows.

PUBLICATIONS

Journal Papers

New 'improved' Compton scatter tomography modality for investigative imaging of one-sided large objects;
J. Cebeiro, M. K. Nguyen, M. A. Morvidone, A. Noumowé; Inverse Problems in Science and Engineering; Londres: Taylor and Francis Ltd. 2017; Vol. 25; Issue 11; pp. 1676-1696; ISSN 1741-5977.

Back-projection inversion of a conical Radon transform;
J. Cebeiro, M. A. Morvidone, M. K. Nguyen; Inverse Problems in Science and Engineering; Londres: Taylor and Francis Ltd. 2015; Vol. 24; Issue 2; pp. 328-352; ISSN 1741-5977.

International Conferences

A new modality of bidimensional Compton camera;
J. Cebeiro, Q. Lebailly, M. A. Morvidone, M. K. Nguyen; 37th IEEE-EMBC (Engineering in Medicine and Biology Conference); Milan; Italia, Agosto 25-31, 2015.

National Conferences

A new Compton scattering tomography and its applications in medical imaging;
J. Cebeiro, M. K. Nguyen, M. A. Morvidone; XXI Congreso Argentino de Bioingeniería y X Jornadas de Ingeniería Clínica; Córdoba; Argentina; octubre, 2017.

The Radon transform on V-lines: artifact analysis and image enhancement;
J. Cebeiro, M. A. Morvidone, M. K. Nguyen; Actas de la XVII Reunión de Trabajo en Procesamiento de la Información y Control RPIC (ISBN 978-987-544-754-7); Mar del Plata; Argentina; 20-22 septiembre, 2017.

The adjoint operator of the Radon transform on rotation V-lines and its role in image reconstruction;

J. Cebeiro, M. A. Morvidone, M. K. Nguyen; VI Congreso de Matematica Aplicada, Computacional e Industrial, ASAMACI; Comodoro Rivadavia; Argentina; Mayo 2017.

On a new two-dimensional Compton camera modality: image reconstruction by back-projection and TSVD;
J. Cebeiro, Q. Lebailly, M. A. Morvidone, M. K. Nguyen; 25ème Actas del 25ème. Colloque GRETSI (Groupe d'Etudes du Traitement du Signal et des Images); Lyon; Francia; 8-11 septiembre, 2015.

Back-projection of the tilted TV transform. V Congreso de Matematica Aplicada;
J. Cebeiro, M. A. Morvidone, D. Rubio; V Congreso de Matematica Aplicada, Computacional e Industrial, ASAMACI; Tandil; Argentina; 2015.

SVD Technique Applied in a 3D Inverse Imaging Problem;
J. Cebeiro, M. A. Morvidone; XXI Congreso sobre métodos numéricos y sus Aplicaciones ENIEF (ISSN-1666-6070); Bariloche; Argentina; Septiembre 2014.

SVD inversion for the bi-dimensional Conical Radon Transform;
J. Cebeiro, M. A. Morvidone; Journal of Physics: Conference Series Volume 477, XIX Bioengineering Society Congress; Tucumán; Argentina; septiembre, 2013.

The 2D Compounded Conical Radon Transform and its Algebraic Inversion;
J. Cebeiro, M. A. Morvidone; Actas de la XV Reunión de Trabajo en Procesamiento de la Información y Control RPIC (ISBN 978-987-27739-7-7); Bariloche; Argentina; 16-20 septiembre, 2013.

Algebraic Inversion Technique for the TV-transform;
J. Cebeiro, M. A. Morvidone, D. Rubio; Actas de IV Congreso de Matemática Aplicada, Computacional e Industrial , (ISSN 2314-3282); Buenos Aires; Argentina; 15-17 mayo, 2013.

Low flow measurement for infusion pumps: implementation and uncertainty determination of the normalized methodm;
J. Cebeiro, A. Musacchio and E. Fernandez Sardá; Journal of Physics: Conference Series Volume 332, XIIX Bioengineering Society Congress; Mar del Plata; Argentina; septiembre, 2011.

Estimación de la profundidad anestésica basada en índices espectrales de la señal de EEG;
J. Cebeiro, M. J. Urcola y D. Craiem; Actas XVIII Congreso de la Sociedad Argentina de Bioingeniería; Rosario, Argentina, septiembre, 2009.

Redes neuronales aplicadas al reconocimiento del diámetro arterial en imágenes ecográficas;
J. Cebeiro, D. Craiem, R. Armentano; Actas XVII Congreso de la Sociedad Argentina de Bioingeniería; San Juan, Argentina, septiembre, 2007.

TEACHING EXPERIENCE

Courses: Image Processing and Signal Processing, Mathematics (I) and Introduction to Calculus.
At School of Science, Universidad Nacional de San Martín (ECyT-UNSAM).

SCIENTIFIC STAYS

Equipes de Traitement de l'Information et Systèmes (ETIS), ENSEA/ Université de Cergy-Pontoise/UMR CNRS 8051, F-95014 Cergy-Pontoise Cedex, France. Years: 2014, 2015 and 2016. Supervisor: Mai K. Nguyen.

RESEARCH PROJECTS

UNSAM A166: Maths applied to engineering problems: CEDEMA UNSAM. Topic: Medical imaging, Compton Scatter Imaging. Período: 01/13-12/14.

AFOSR FA9550-14-1-0276: Applied and theoretical issues on inverse problems. At Centro de Matemática Aplicada UNSAM and Southern office of Aerospace research and development. Topic: inverse problems, Radon transform, Compton scatter imaging. Period: 08/2014 - 07/2017.

SEMINARS

12th IEEE EMBS International Summer School on Biomedical Imaging Saint-Jacut de la Mer, France, 16-24 June, 2016.
Short Course on Radar: RPIC-INVAP, Bariloche, September 2013.
Introduction to finite element method: IV MACI, Buenos Aires, May de 2013.
Technical Service Training on Aysis Anaesthesia Carestation: Solar 8000i, General Electric, August 3-7, 2009.
Workshop IEEE/EMBS: Facultad de Medicina, Universidad Favaloro, Buenos Aires, Argentina. 2006.

OTHER ACTIVITIES

Teacher: Linear Filters for image processing. Workshop on Nuclear Medicine, Red Latinoamericana de Física Médica, EcyT, UNSAM, June 2013.
Evaluation Committee in master degree project. Digital system for the diagnosis of the malignant hyperthermia syndrome, Facultad de Ingeniería, Universidad Favaloro, December 2011.
Technical Committee: Standard IRAM 4220-2-24: Requirements for infusion pumps, Instituto Argentino de Normalización y Certificación, May 2011.