

Europass Curriculum Vitae



Personal information

Surname(s) / First name(s)

Email(s)

Luria, Gianvittorio



Research Interests

Bayesian inverse problems, Monte Carlo methods, Source modeling from MEG/EEG data

Interictal Epileptiform Discharges detection and localization

Machine Learning, Differential privacy

Differential geometry, Constrained calculus of variations, Nonholonomic mechanics, Control theory

Education

05/02/2010

Thesis

Advisor(s)

Ph.D. in Mathematics at the University of Trento (Italy)

“Constrained Calculus of Variations and Geometric Optimal Control Theory”

<http://eprints-phd.biblio.unitn.it/170/>

Prof. Enrico Massa, Prof. Enrico Pagani

12/07/2006

Thesis

Advisor(s)

Physics Degree at the University of Genoa (Italy)

“Formulazione geometrica della teoria del controllo” (*“Geometric formulation of Control Theory”*)

Prof. Enrico Massa

110/110 *cum laude*

Level in national or international classification

Awards

09/02/2016

Qualification à la fonction de maître de conférences (France) in Applied Mathematics and Applications of Mathematics

Working Experiences and Fellowships

December 2019 – Present	Postdoctoral research fellow at the Department of Mathematics of the University of Genoa (Italy)
Supervisor	Dr. A. Sorrentino
Project	Inverse problems and machine learning techniques for the pre-surgical evaluation of epilepsy
October 2018 – November 2019	Term-contract worker at <i>Fondazione IRCSS - Istituto neurologico "Carlo Besta"</i> , Milan (Italy)
Supervisor	Dr. E. Visani
Project	Bayesian dipole modeling for inter-ictal epileptic spikes localization
July 2017 – June 2018	Postdoctoral research fellow at the Department of Mathematics of the University of Genoa (Italy)
Supervisor	Dr. A. Sorrentino
Project	Machine learning techniques for <i>nowcasting</i> in the Ligurian region
July 2016 – June 2017	Postdoctoral position at the Department of Mathematics of the University of Genoa (Italy)
Supervisor	Prof. M. Piana
Project	Machine learning techniques for educational data modeling
April 2016 – July 2016	Senior researcher at <i>Consorzio Nazionale Interuniversitario per le Telecomunicazioni</i> (CNIT)
September 2015 – March 2016	Research position at the Department of Mathematics of the University of Genoa (Italy)
Supervisor	Dr. A. Sorrentino
Project	Development and C++ implementation of a "Sequential Monte Carlo" method for Magneto/Electroencephalography
March 2013 – February 2015	Postdoctoral position at the Department of Engineering of the University of Genoa (Italy)
Supervisor	Prof. S. Vignolo
Project	Integrated system for ship motions control and automatic stabilization
March 2012 – February 2013	Postdoctoral position at the Department of Mathematics of the University of Genoa (Italy)
Supervisor	Prof. M. Piana
Project	Mathematical-Physical models and computational methods in magnetoencephalographic data analysis and interpretation

Publications

1. G. Luria, A. Sorrentino, S. Sommariva, E. Visani and D. Duran - *SESAME: a powerful method for multi-dipole modeling in time and frequency with clinical applications* - Abstract accepted for poster session in International Conference on Basic and Clinical Multimodal Imaging 2019.
2. G. Luria, D. Duran, E. Visani, S. Sommariva, F. Rotondi, D. Rossi Sebastiano, F. Panzica, M. Piana and A. Sorrentino - *Bayesian multi-dipole modelling in the frequency domain*. - Journal of neuroscience methods. Vol. 312, Pag. 27–36 (2019) DOI: <https://doi.org/10.1016/j.jneumeth.2018.11.007>
3. F. Rossi, G. Luria, S. Sommariva and A. Sorrentino - *Bayesian multi-dipole localization and uncertainty quantification from simultaneous EEG and MEG recordings*. - in Eskola H., Väisänen O., Viik J., Hyttinen J. (eds) EMBEC & NBC 2017. EMBEC 2017, NBC 2017. IFMBE Proceedings, Vol. 65, Springer, Singapore (2018)
4. L. Oneto, A. Siri, G. Luria and D. Anguita - *Dropout prediction at the University of Genoa: a privacy preserving data driven approach*. - European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN) 2017.
5. E. Massa, G. Luria and E. Pagani - *Geometric constrained variational calculus. III. - The second variation (Part II)*. - International Journal of Geometric Methods in Modern Physics. Vol. 13, No. 4 1650038 (2016) DOI: 10.1142/S0219887816500389
6. E. Massa, D. Bruno, G. Luria and E. Pagani - *Geometric constrained variational calculus. II. - The second variation (Part I)*. - International Journal of Geometric Methods in Modern Physics. Vol. 13, 1550132 (2016) DOI: 10.1142/S0219887815501327
7. S. Sommariva and G. Luria - *An easy-to-use Python module for multi-dipole modeling from Electro/Magnetoencephalographic data*. - Abstract accepted for poster session in International Conference on Basic and Clinical Multimodal Imaging 2015.
8. E. Massa, D. Bruno, G. Luria and E. Pagani - *Geometric constrained variational calculus. I. - Piecewise smooth extremals*. - International Journal of Geometric Methods in Modern Physics. Vol. 12, 1550061 (2015) DOI: 10.1142/S0219887815500619
9. A. Sorrentino, G. Luria and R. Aramini - *Bayesian multi-dipole modelling of a single topography in MEG by adaptive sequential Monte Carlo samplers*. - Inverse Problems. Vol. 30, 045010 (2014). DOI: 10.1088/0266-5611/30/4/045010
10. A. Alessandri, S. Donnarumma, G. Luria, M. Martelli, S. Vignolo, R. Chiti and L. Sebastiani - *Dynamic Positioning system of a vessel with conventional propulsion configuration: Modeling and simulation*. - in Maritime Technology and Engineering. Lisbon, Portugal, 15th October 2014, London: Taylor & Francis Group, p.725-733. ISBN/ISSN: 9781138027275
11. R. Aramini, A. Sorrentino, G. Luria and M. Piana - *A Bayesian approach to magnetoencephalography in the frequency domain*. - in Congresso Nazionale SIMAI 2012 - Abstracts
12. D. Bruno, G. Luria and E. Pagani - *On the gauge structure of the calculus of variations with constraints* - International Journal of Geometric Methods in Modern Physics. Vol. 08, 1723 (2011). DOI: 10.1142/S0219887811005890

Preprints

1. G. Luria, D. Duran, E. Visani, D. Rossi Sebastiano, A. Sorrentino, L. Tassi, A. Granvillano, S. Franceschetti and F. Panzica - *Towards the automatic localization of the irritative zone through magnetic source imaging* - Original article submitted to Brain Topography.
2. A. Viani, G. Luria, H. Bornfleth and A. Sorrentino - *Where Bayes tweaks Gauss: Conditionally Gaussian priors for stable multi-dipole estimation* - Original article submitted to Inverse Problems and Imaging.
3. M. M. Mancardi, C. Nesti, F. Febbo, R. Cordani, L. Siri, L. Nobili, E. Lampugnani, T. Giacomini, T. Granata, G. Marucci, A. Consales, A. Rossi, G. Luria, F. Santorelli and S. Buratti - *Focal status and acute encephalopathy in a 13-year-old boy with de novo DNM1L mutation: video-polygraphic pattern and clues for differential diagnosis* - Original article submitted to Epilepsia.

Teaching activity

2017–2018	Teaching assistant in “Rational Mechanics” at graduation course in Naval Engineering of the University of Genoa.
2016–2017	Adjunct Professor (<i>Professore a contratto, art. 32, comma 5 del regolamento di Ateneo dell'Università di Genova</i>) in “Inverse problems and applications” at graduation course in Mathematics of the University of Genoa.
2016–2017	Teaching assistant in “Rational Mechanics” at graduation course in Naval Engineering of the University of Genoa.
2015–2016	Teaching assistant in “Rational Mechanics” at graduation course in Naval Engineering of the University of Genoa.
2010–2011	Adjunct Professor (<i>Professore a contratto, art. 32, comma 5 del regolamento di Ateneo dell'Università di Genova</i>) in “Theory of curves and rigid bodies” at graduation course in Civil Engineering of the University of Genoa.
2008–2009	Teaching assistant in “Analytical Mechanics I” at graduation course in Physics of the University of Trento.

Supervision of Master Theses

2019	Matelda Gandolfo - <i>Depth-based epileptic spike detection in MEG</i> , Master thesis in Mathematics, University of Genoa
2018	Sabrina Defilippi - <i>Forecasting meteorological variables with time series analysis</i> , Master thesis in Mathematics, University of Genoa
2018	Eleonora Baldacci - <i>A stopping criterion for Adaptive Sequential Monte Carlo samplers with application in a Bayesian context</i> , Master thesis in Mathematics, University of Genoa

Software

- 2020** **SESAMEEG** (Python3), Open–source library providing the Bayesian multi-dipole localization method SESAME (SEquential Semi-Analytic Montecarlo Estimation) for the automatic estimation of brain source currents from MEEG data, either in the time domain and in the frequency domain. <https://pybees.github.io/sesameeg/>
- 2018** **SESAME** (C++), Bayesian source imaging library. Included in *BESA Research 7.0*, BESA[®] GmbH, Monaco (Germany)
- 2015** **NeuroCUDE** (Python), Free and open–source cross-platform program for the automatic estimation of an unknown number of static multi-dipolar neural sources from MEG/EEG data. Provided with a user-friendly graphical interface together with its own visualization tool. http://mida.dima.unige.it/g_software_neurocude.html