Redouane Lguensat

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born in 1991 (26 y.o), Moroccan citizenship.
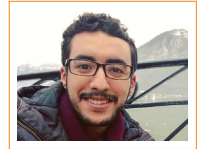
Experience

Dec 2017 – 2019
Inversion of SWOT mission data using data-driven methods, *Postdoc researcher - MEOM team; IGE; Grenoble Alpes University*, Grenoble.
Analog methods, Data Assimilation, Deep Learning

Nov 2014 – 2017
Data-driven interpolation of geophysical dynamics using analog methods, *PhD student - LabSTICC; IMT Atlantique; Bretagne-Loire University*, Brest.
Stochastic filtering, Analog methods, Data Assimilation, Deep Learning

Apr – May 2016
Sea Altimetry Mapping using Analog Data Assimilation, *Visiting PhD student - Ocean University of China - MIT lab*, Qingdao.
Analog Hidden Markov Models, Sea Level Anomalies, Multi-Scale Reconstruction.

Avr – Sep 2014
Solving nonlinear non-convex inverse problems under sparsity constraints., *Research intern - CEA Saclay - Cosmostat team*, Saclay.
Convex/non-convex optimization, Sparsity, Greedy algorithms, Proximal algorithms

Jul – Aug 2013
Study of electric vehicles charging strategies and their impact on the smart grid, *Research intern - IRISA - OCIF team*, Rennes.
Smart grid, Game theory, Reinforcement Learning.

Awards and grants

CNES
Postdoctoral grant

EURASIP
Ranked second at the "3 min thesis" competition of EUSIPCO 2016 Budapest, submitted video can be seen here `https://youtu.be/bp6mOXf7BJY`

"Norman Miller's Prize"
Best Student Poster at IEEE/MTS OCEANS'16 Conference in Shanghai, China

"Morocco Science Award" 2016
Delivered by the "Moroccan Scientific Community", a science communication initiative run by a team of volunteers covering different areas of expertise. The prize was given for the category "3 min thesis"

Fondation Telecom
"Programme First": Innovation contest with a study trip to Rio de Janeiro and São Paolo, `https://programmefirst2013.wp.mines-telecom.fr/`

Education

2014–2017
Doctor of Philosophy (PhD) in Computer Vision for Remote Sensing, *IMT Atlantique*, Brest.
`www.imt-atlantique.fr` (formerly known as Telecom Bretagne)

2011–2014
Engineer's degree, Major: Information Processing Systems., *IMT Atlantique*, Brest.

2013–2014
Research master degree "Sciences, Technologies, Santé", SISEA, major Image Processing., *Université de Rennes I*, Rennes.

2011–2012
Bachelor's degree: Mathematics., *Université de Bretagne Occidentale*, Brest.

2009–2011
Preparatory classes for French "Grandes Ecoles", *CPGE Mohamed V*, Casablanca, *MPSI/MP**.

Publications

Journal papers	○ **R. Lguensat**, P. Tandeo, P. Aillot, M. Pulido and R. Fablet, "The Analog Data Assimilation" *Monthly Weather Review*, in revision (Round 2)
	○ R. Fablet, P. Viet, and **R. Lguensat**. "Data-driven Methods for Spatio-Temporal Interpolation of Sea Surface Temperature Images". *IEEE Transactions on Computational Imaging*, in press 2017.
	○ Y. Yang, J. Dong, X. Sun, **R. Lguensat**, M. Jian, X. Wang. "Ocean Front Detection from Instant Remote Sensing SST Images". *IEEE Geoscience and Remote Sensing Letters*, 2016

Conference papers	○ R. Fablet, P. Viet, and **R. Lguensat**. "Data-driven assimilation of irregularly-sampled image time series" ICIP 2017: IEEE International Conference on Image Processing, Beijing, China.
	○ **R. Lguensat**, M. Sun, G. Chen, T. Lin, R. Fablet, Spatio-Temporal Interpolation of Altimeter-Derived SSH Fields Using Analog Data Assimilation: A Case-Study In The South China Sea. IGARSS 2017 : IEEE International Geoscience and Remote Sensing Symposium, Fort Worth, Texas, USA.
	○ **R. Lguensat**, R. Fablet, P. Ailliot and P. Tandeo, An Exemplar-based HMM framework for nonlinear state-space models. EUSIPCO 2016 : IEEE European Signal Processing Conference, Budapest, Hungary.
	○ **R. Lguensat**, P. Tandeo, P. Ailliot, B. Chaperon and R. Fablet, Using archived datasets for missing data interpolation in ocean remote sensing observation series, MTS/IEEE OCEANS'16, Shanghai, China.
	○ P. Tandeo, P. Ailliot, B. Chapron, **R. Lguensat** and R. Fablet, The analog data assimilation: application to 20 years of altimetric data, Climate Informatics 2015, Boulder, Colorado.
	○ **R. Lguensat**, P. Tandeo, R. Fablet and P. Ailliot, Non-parametric Ensemble Kalman methods for the inpainting of noisy dynamic textures. ICIP 2015 : IEEE International Conference on Image Processing, Quebec City, Canada.
	○ **R. Lguensat**, P. Tandeo, R. Fablet and R. Garello, Spatio-temporal interpolation of Sea Surface Temperature using high resolution remote sensing data, OCEANS'14, St. John's, Canada.
	○ S. Dimitrov, **R. Lguensat**, Reinforcement Learning Based Algorithm for the Maximization of EV Charging Station Revenue, Mathematics and Computers in Sciences and Industry (MCSI 2014), Varna, Bulgaria.

Master thesis	○ **R. Lguensat**, Nonlinear optimization under sparsity constraints: Algorithms for solving nonlinear inverse problems. Master SISEA, Universite de Rennes I, 2014.

Invited conferences and workshop talks

- ○ Talk on "Toward data-driven methods in geophysics: the Analog Data Assimilation" at European Geophysical Union 2017, Vienna, Austria.
- ○ Poster presentation at Colloque National sur l'Assimilation de données (French national seminar on Data Assimilation) Nov 2016, at Grenoble, France.
- ○ Poster presentation at ACO conference organized by Sea Tech Week, Oct 2016, Brest, France.
- ○ Talk on "Analog Data Assimilation" at Stochastic Weather Generators (SWGEN), 17 May 2016, Vannes, France.
- ○ Talk on the use of historical datasets in geophysics at a joint Seminar between the MIT Lab and Vision Lab of Ocean University of China, 19 April 2016, Qingdao, China.
- ○ Poster presentation at the 2nd GlobCurrent User Consultation Meeting on Analog methods applied to 20 years of altimetric data, 4-6 November, Brest, France.
- ○ Talk and Poster presentation on inpainting of noisy and noncomplete image sequences using Analog Ensemble Kalman methods at the first MissData 2015 conference, 18-19 June, Rennes, France.
- ○ Talk at SEACS workshop on Analog Hidden Markov Models: a discrete formulation of the Analog particle filter introduced by Tandeo et al., 26-27 May, in Landeda, France.

Teaching

64h of supervised work/exercise class on Statistics, Probability, Digital communication theory, Image and signal processing.

Languages

Arabic/Berber	Native speaker	French	Bilingual
English	B2 level	Chinese	A2 level

Misc.

Scientific societies	○ *EURASIP* student member since 2016
	○ *IEEE Signal proccessing society* member since 2015
	○ *IEEE Telecom Bretagne student branch* board member 2016
	○ *IEEE* student member since 2014

Sport	Football, Badminton.
Hobbies	Pop Science in Moroccan Arabic, Video games, Poetry, Electronic Dance Music.
Photography	Photo editing, Montage.
Theater	Mime.