

Rodolfo G. Lotte

PHD STUDENT IN REMOTE SENSING | SYSTEM ANALYST WITH SCIENTIFIC EMPHASIS

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"Everything you can imagine is real." –Pablo Picasso

Skills

Programming	Java, Python, C/C++, MATLAB, Javascript, R, LaTeX
Agile development	Scrum, TDD
Web	Django with Python, JavaEE, JSF, HTML5, CCS3
Graphic interface	PrimeFaces 2.0+, Adobe Photoshop, Adobe Edge, Adobe Illustrator, Adobe InDesign
Geoinformatic	LASTools, CGAL, PCL, PhotoScan, VisualSfM, CloudCompare, MeshLab, Surfer, ENVI, SPRING, TerraView, eCognition, Idrisi, GlobalMapper, WhiteBox, ArcGIS, QuantumGIS
Languages	English, Spanish, Italian, German

Education

National Institute for Space Research (INPE)

SJC, São Paulo, Brazil

PHD STUDENT IN REMOTE SENSING

Mar. 2014 - PRESENT

- Topic: 3D urban reconstruction in a highly detailed level using airborne (ALS) and terrestrial laser scanner (TLS)
- Advisor: Prof. Dr. Luiz Eduardo Oliveira e Cruz de Aragão, INPE
- Advisor: Prof. Dr. Yosio Edemir Shimabukuro, INPE
- Advisor: Prof. Dr.-Ing. Norbert Haala, University of Stuttgart, Germany

Institute für Photogrammetrie (IfP)

Stuttgart, Germany

PHD STUDENT EXTENSION

Jul. 2017 - Jan. 2018

- Topic: 3D urban reconstruction in a highly detailed level using airborne (ALS) and terrestrial laser scanner (TLS)
- Advisor: Prof. Dr. Luiz Eduardo Oliveira e Cruz de Aragão, INPE
- Advisor: Prof. Dr. Yosio Edemir Shimabukuro, INPE
- Advisor: Prof. Dr.-Ing. Norbert Haala, University of Stuttgart, Germany

National Institute for Space Research (INPE)

SJC, São Paulo, Brazil

MSC. IN COMPUTER SCIENCE AND ENGINEERING

Mar. 2010 - Dec. 2012

- Topic: Road extraction in airborne SAR images: An Active Countour Model approach using semiautomatic seeding
- Advisor: Prof. Dra. Cláudia Maria de Almeida, INPE
- Advisor: Prof. Dr. Sidnei João Siqueira Sant'Anna, INPE

University of Franca (UNIFRAN)

Franca, São Paulo, Brazil

B.S. IN SYSTEM ANALYSIS

Mar. 2006 - Dec. 2009

- Topic: Conexionist knowledge in a image searcher system
- Advisor: Prof. Dr. Antônio Fernando Traina, UNIFRAN

Experience

Brazilian Space Weather Monitor Program, EMBRACE

SYSTEM ANALYST – INDRA COMPANY & ASTROPHYSICS RESEARCH

INPE, SJC, São Paulo, Brazil

Apr. 2015 - Jul. 2017

- **Interplanetary Medium, Solar Wind:** Monitoring the physical parameters of the solar plasma and estimate the possible effects that changes in the space weather condition [<Read More>](#).
- **Total Electronic Content Improved, TEC:** Brazilian space weather application which aims the estimative of ionosphere density through GNSS signals. Improvements have been made in order to get more accurate estimatives of TEC.
- **Total Solar Irradiance, TSI:** Brazilian space weather application which aims the daily solar activities. The TSI application uses Neural Nets and Image Process techniques to estimate and predict physical solar values [<Read More>](#).
- **User Space Weather Workshop, Portal:** Website for Space Weather User Workshop [<Read More>](#).
- **Space Weather Monitor, SWMonitorUser:** Brazilian public portal for downloading data related to space weather, such as magnetometers, ionograms, gnss, and many other monitoring products [<Read More>](#).
- **EMBRACE Mobile:** Development of EMBRACE applications for mobile devices, which now allow the users to be notified with alerts and the current space weather condition. The app is free for download at [Google play](#).

Tools for Open Multi-risk assessment using Earth Observation data, TOLOMEO

AFFILIATE RESEARCHER IN REMOTE SENSING

Università degli studi di Pavia,
Pavia, Italy

Jul. 2013 - Jan. 2014

- **BREC Road Extractor Operator:** Development of roads network extractor in radar images, using C++ language within InterIMAGE platform (PUC/Rio)
- **BREC Road Cross Detection:** Development filters of polygons to detect intersection or cross paths of roads, using C++ language within InterIMAGE platform (PUC/Rio)

Tools for Open Multi-risk assessment using Earth Observation data, TOLOMEO

AFFILIATE RESEARCHER IN REMOTE SENSING

Leibniz Universität Hannover,
Hannover, Germany

Jan. 2013 - Jul. 2013

- **Network Snakes:** Study of a methodology to extract road centerlines based in a non-parametric algorithm called Active Contour Models or Snakes

Brazilian Space Weather Monitor Program, EMBRACE

SYSTEM ANALYST – CTIS TECNOLOGIA S.A. & ASTROPHYSICS RESEARCH

INPE, SJC, São Paulo, Brazil

Jan. 2011 - Dec. 2012

- **Total Electron Content, TEC:** Development team member of the TEC application, which consisted a work since the acquisition of raw data in the EMBRACE servers until the visualized component, so called TECMap. The TECMap shows the overview of the ionospheric layer from South America GNSS network data. [<Read More>](#)
- **Ionosphere:** Development team member of the Ionograms application, which shows the profile of the ionosphere from data collected from numerous ionosondes spread all over Brazilian territory. [<Read More>](#)
- **Scintillation:** Development team member of the Scintillation application, which, as well as the application of TEC, graphically shows the ionospheric scintillation by calculating the S4 component. The ionospheric scintillation is also performed by data from South America GNSS network. [<Read More>](#)
- **Magnetosphere:** Development team member of the Magnetosphere application, that through data from magnetometers installed in Brazil, aims to monitor the behavior of the Earth's magnetosphere (geomagnetic components H, D, Z). [<Read More>](#)
- **High solar frequency, Callisto:** Development team member of the high frequency solar (Callisto) application, which through data from Callisto antenna, aims to monitor specific frequencies sun for identification of significant solar activity. [<Read More>](#)

Extracurricular Activity

Pattern Recognition and Computer Vision (Lecture)

STUTTGART UNIVERSITÄT

Stuttgart, Germany

Oct. 2017

FF-225 Laser I - Princípios Físicos (Lecture)

INSTITUTO TECNOLÓGICO DE AERONÁUTICA, ITA

SJC, São Paulo, Brazil

Ago. 2014

Principles in ERDAS IMAGINE I and II

SANTIAGO E CINTRA GEO-TECNOLOGIAS

SJC, São Paulo, Brazil

Oct. 2014

Processing of laser scanner data (LiDAR)

UNIVERSIDADE DO ESTADO DE SANTA CATARINA, UDESC

Lages, Santa Catarina, Brazil

Jul. 2011

Rich Internet Applications using Adobe Flex + .Net

UNIVERSITY OF FRANCA, UNIFRAN

Franca, São Paulo, Brazil

Mar. 2009

Writing

Remote Sensing and Computing Tips, RSCT

FOUNDER & WRITER

Facebook Page

Ago. 2014 - PRESENT

- Drafted daily news for developers about Remote Sensing and IT technologies, issues and tips of best geotechnologies in the moment

Publications

Congress and Symposium

2017

PUBLICATIONS

- **Lotte, R.G.;** Almeida, C.M.; Mitishita, E. A. Uma rotina metodológica para reconstrução 3D e extração de parâmetros geométricos de edificações em baixo nível de detalhamento a partir de dado LiDAR aerotransportado. Anais XVIII Simpósio Brasileiro de Sensoriamento Remoto - SBSR, Santos-SP, Brasil, 29 a 30 de maio de 2017
- **Lotte, R.G.;** Almeida, C.M. Uma breve revisão sobre metodologias para a reconstrução 3D de ambientes urbanos pelo uso de nuvem de pontos. Anais XVIII Simpósio Brasileiro de Sensoriamento Remoto - SBSR, Santos-SP, Brasil, 29 a 30 de maio de 2017

Congress and Symposium

2015

PUBLICATIONS

- **Lotte, R.G.;** Almeida, C.M.; Valeriano, M. M. Aquisição do índice TWI para avaliação de suscetibilidade a movimentos de massa na região de São Sebastião-SP. Anais XVII Simpósio Brasileiro de Sensoriamento Remoto - SBSR, João Pessoa-PB, Brasil, 25 a 29 de abril de 2015
- Siani, S. M. O., Campos, J., França, D. G. M., **Lotte, R.G.**, Amaral, S., Monteiro, A. M. V., Körting, T. S. Land-cover classification of an intra-urban environment using high-resolution images and geographic object-based image analysis: the case of APA Mananciais do Rio Paraíba do Sul. Anais XVII Simpósio Brasileiro de Sensoriamento Remoto - SBSR, João Pessoa-PB, Brasil, 25 a 29 de abril de 2015
- França, D. G., **Lotte, R.G.**, de Almeida, C. M., Siani, S. M., Korting, T. S., Fonseca, L. G., da Silva, L. T. (2015, March). Object-based image analysis for urban land cover classification in the city of Campinas-SP, Brazil. In Urban Remote Sensing Event (JURSE), 2015 Joint (pp. 1-4). IEEE

PUBLICATIONS

- **Lotte, R.G.;** Sant'Anna, S.J.S.; Almeida, C.M. Roads centre-axis extraction in airborne SAR images: An approach based on Active Contour Model with the use of semi-automatic seeding. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences. XL-1/W1. 207-212. doi:10.5194/isprsarchives-XL-1-W1-207-2013
- Sant'Anna, N.; De Nardin, C.; Takahashi, H.; Costa, J. E. R.; Batista, I. S.; Ivo, A. S.; Gomes, V. C.; **Lotte, R.G.;** Pereira, F. O.; Salgueiro, M. P. IT Capabilities of Brazilian Space Weather Program. IX European Space Weather Week – ESWW'9. Brussels, Belgium. 5-9 November, 2012
- **Lotte, R.G.;** Almeida, C.M.; Silva, J.D.S. Identification of seed points for road extraction in airborne SAR images: a self-organizing maps-based approach. Proceedings of the X Brazilian Congress on Computational Intelligence – CBIC'2011. Fortaleza, CE: Federal University of Ceara – UFCE, 2011
- **Lotte, R.G.;** Almeida, C.M.; Sant'Anna, S.J.S.; Freitas, C.C.; Silva, J.D.S. Rural roads detection in airborne SAR images using a SOM unsupervised neural network. Proceedings of the XI Graduate Programme Workshop on Applied Computer Sciences of INPE – XI WORCAP. São José dos Campos, SP: INPE, 2011

Congress and Symposium

2012

PUBLICATIONS

- Sant'Anna, N.; De Nardin, C.; Takahashi, H.; Costa, J. E. R.; Batista, I. S.; Ivo, A. S.; Gomes, V. C.; **Lotte, R.G.;** Pereira, F. O.; Salgueiro, M. P. IT Capabilities of Brazilian Space Weather Program. IX European Space Weather Week – ESWW'9. Brussels, Belgium. 5-9 November, 2012

Congress and Symposium

2011

PUBLICATIONS

- **Lotte, R.G.;** Almeida, C.M.; Silva, J.D.S. Identification of seed points for road extraction in airborne SAR images: a self-organizing maps-based approach. Proceedings of the X Brazilian Congress on Computational Intelligence – CBIC'2011. Fortaleza, CE: Federal University of Ceara – UFCE, 2011
- **Lotte, R.G.;** Almeida, C.M.; Sant'Anna, S.J.S.; Freitas, C.C.; Silva, J.D.S. Rural roads detection in airborne SAR images using a SOM unsupervised neural network. Proceedings of the XI Graduate Programme Workshop on Applied Computer Sciences of INPE – XI WORCAP. São José dos Campos, SP: INPE, 2011