Curriculum Vitae

PERSONAL INFORMATION

Juliette Marais

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POSITION

Researcher in the field of Geopositioning for land transport applications

WORK EXPERIENCE

02/09/2002–Present — Researcher

Université Gustave Eiffel (ex-Ifsttar), Villeneuve d'Ascq (France)

Research activities in the field of :

- GNSS quality of service for Land Transport applications, performance evaluation and enhancement
- GNSS integrity in transport environment
- GNSS applications in railway and public transport operations

Participation to national and European research projects (CAPLOC – FR, QualiSaR, SATLOC and GaloRoi during the FP7, STARS and ERSAT GGC in H2020, Gate4rail and X2Rail2 in Shift2Rail)

Participation to different expert groups related to ITS or railways:

- the UIC group of expert on Galileo applications for rail (2008 – 2012)
- French working groups for new GNSS services for the MEDDE and CNES
- SaPPART COST Action TU1302, Satellite Positioning Performance Assessment for Road Transport (2013-2017)
- Member of the Nice jury for the European Navigation Satellite Competition (ENSC) since 2009
- Member of the WG 4.1.4 « Robust Positioning for Urban Traffic » of the International Association of Geodesy (IAG).

EDUCATION AND TRAINING

26/11/2017 — HDR – Habilitation à diriger des recherches

University authorization to supervise researches

University of Lille (France)

09/1999–04/07/2002 — PhD thesis

University of Lille 1, Villeneuve d'Ascq (France)

Satellite availability for GNSS applications in transport, signal propagation

09/1998–07/1999 — Master degree

University of Lille 1, Villeneuve d'Ascq (France)

Electronics

09/1993–07/1998 — Engineering degree

Institut Supérieur d'Electronique du Nord (ISEN – Lille), Lille (France)

PERSONAL SKILLS

Mother tongue(s) French

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C2
	First certificate of Cambridge Univ.				

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
Common European Framework of Reference for Languages

Communication skills

- Good communication skills gained through many communications done in congress or meetings
- Teaching skills

Organisational / managerial skills

- Organiser of scientific events such as workshops, conferences, seminars, from which:
  - GNSS special session ITST2009, ITST2017, ITST 2018
  - Workshop localization of land transport applications – Paris 2009
  - Workshop on European satellite navigation benefits for railways, Lille, 20 nov. 2014 and Toulouse March 2016
- Member of technical program committees
- Responsible of course modules for engineering schools (ISEN since 2002, ENPC 2007-2008, ENSTA since 2015, Specialized masters in UTC and ENSTA)

Job-related skills

- Good knowledge of Satellite positioning sciences and technologies, Signal processing, data fusion
- Good background in satellite-based safety application. Recognised expertise in satellite-based railway applications.
- Project management experience as a task leader in EU projects, project leader of the CAPLOC french project
- Intensive experience of writing and communication of scientific results

ADDITIONAL INFORMATION

Projects

- 1998 – 2002, *LOCOPROL*, Development of a GNSS-based control command system for low density traffic lines, EC FP5, participant
- 2002 – 2005, *TESS*, Communicating urban bus for information and surveillance, participant
- 2006 – 2009, *ANGO*, GNSS based positioning system for urban buses, French PREDIT program, participant
- 2008 – 2009, *Study of Galileo performance for railway safety application*, Expertise for the French ministry of transport
- 2006 – 2010, *Tr@in-MD*, Intelligent transport of dangerous goods by rail, PREDIT/ANR/ADEME, participant.
- 2009 – 2010, *GARA*, Galileo application for railway safety operation, expertise for the French ministry of transport
- 2010 – 2014, *CAPLOC*, Analysis of the knowledge of the 3D environment of propagation to

evaluate and enhance GNSS solution, French Ministry of Transport, Coordinator

- 2012 – 2013, *SATLOC,* Demonstration of the applicability of GNSS for railway safety operations on low density lines, EC FP7/GSA, participant
- 2012 – 2013, *GALOROI,* certifiable safety relevant satellite based on-board train localisation unit, EC FP7/GSA, participant
- 2012 – 2013, *QualiSaR*, Qualification of GNSS performance in transport environment, EC FP7/GSA, participant
- 2016-2017, *STARS*, Satellite Technology for Advanced Railway Signalling, H2020, participant
- 2017-2019, *ERSAT GGC*, ERTMS on SATELLITE Galileo Game Changer, H2020, participant
- 2018-2020, Gate4Rail, GNSS Automated Virtualized Test Environment for RAIL, Open Call Shift2Rail, participant

Last 10 years main publications

Zhu, N, Marais, J, Bétaille, B, Berbineau, M, *Integrity in Urban Environment: A Review of Literature*, IEEE Transactions on ITS – Early access, 05 January 2018, 17p.

Zhu, N, Marais J, Bétaille, D, Berbineau, M, *Evaluation and Comparison of GNSS Navigation Integrity Monitoring Algorithms for Urban Transport Applications*, ION-ITM, January 30-February 2, 2017, Monterey, California

Marais, J, Beugin, J, Berbineau, M, *A survey of GNSS-based Research and Developments for the European railway signaling*, IEEE Transactions on Intelligent Transport Systems, 18(10), 2602-2618.

Nguyen, T.P.K, Beugin, J, Marais, J, *Method for evaluating an extended Fault Tree to analyse the dependability of complex systems: Application to a satellite-based railway system*, Reliability Engineering & System Safety, Volume 133, January 2015, Pages 300-313

Marais, J, Meurie, C, Flancquart,A, Lithgow, S, Barbu, G, *Innovative simulations of GNSS performances in a realistic railway environment*, CERGAL, Dresde, 7-9 juillet 2014.

Marais, J, Meurie, C, Attia, D, Ruichek, Y, Flancquart, A, *Toward accurate localization in guided transport: combining GNSS data and imaging information*, Transportation Research Part C: Emerging Technologies, le 05/11/2013. Online publication complete: 8-DEC-2013

Beugin J, Filip A, Marais J, Berbineau M, *Galileo for improving railway operations: question about the positioning performances analogy with the RAMS requirements allocated to safety applications*, European Transport Research Review (ETRR) Volume 2, Number 2 / June 2010, pp93-102.

Viandier N, Rabaoui A, Marais J, Duflos E, *Studies on DPM for the density estimation of pseudorange noises and evaluations on real data*, IEEE PLANS, Palm Springs, -6-9 May, 2010.

Nahimana D, Marais J, Duflos E, *A Jump Markov System for modelling a realistic error model depending on satellite reception state in urban environment*, ION GNSS, Oct 2007, Fort Worth, Texas.

Marais, J, Poliak, J, Hänsel, F, *Tools for validation and acceptance of GNSS solutions in rail*, European Navigation Conference (ENC-GNSS), Genève, Mai 2007.

Marais J, Berbineau M, Heddebaut M, *Land Mobile GNSS, Availability and Multipath Evaluation Too*l, IEEE Trans. On Vehicular Technology, Sept. 05, Vol. 54, Issue 5, pp 1697-1704.