

## PERSONAL INFORMATION



## Julie BEUGIN, researcher

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Nationality French

## WORK EXPERIENCE

March 2007 – present

Since 2011

### Researcher – Université Gustave Eiffel

Permanent researcher at **ESTAS** since 01/09/2011, Laboratory of Evaluation of Automated Transport Systems and their Safety, Villeneuve d'Ascq, France

**Research interest:** dependability and safety evaluation of complex guided transportation systems; specific issues related to wireless solutions embedded in train control applications

- Involved in [PERFORMINGRAIL project](#) (2020-2023) – PERformance-based Formal modelling and Optimal tRaffic Management for movING-block RAILway signalling, H2020 EU Research and Innovation programme, open call of Shift2Rail
- Involved in [ERSAT-GGC project](#) (2017-2019) – ERTMS on Satellite Galileo Game Changer, H2020 EU Research and Innovation programme
- Involved in [STARS project](#) (2016-2018) – Satellite Technology for Advanced Railway Signalling, H2020 EU Research and Innovation programme
- Coordinator of the [SIL project](#) (2013-2015) – funded by EPSF (French National Safety Authority), proposal for a guide defining an allocation method for 'Safety Integrity Level' to railway safety functions
- Involved in [Systuf project](#) (2012-2015) – Telecommunication System for Future Urban Transport, French government programme 'Investments for the Future'
- Involved in [GaLoROI project](#) (2012-2014) – Galileo Localisation for Railway Operation Innovation, 7<sup>th</sup> European framework programme
- Involved in [QualiSar project](#) (2012-2013) – Qualification procedure for Galileo receivers in safety applications, 7<sup>th</sup> European framework programme

2007-2011

Post-doctoral researcher at **LEOST** from 03/2007 to 08/2011, Laboratory on Electronics, Waves and Signal Processing for Transport, Villeneuve d'Ascq, France

**Topic:** RAMS demonstration issues of satellite-based solutions embedded in train control applications

- [2 studies realized for DGITM](#) (French General Directorate of Infrastructures, Transport and the Sea) on railway applications of satellite navigation, approach development for quantifying dependability performance indicators with GPS data analysis, and modelling of signal behaviour with Petri nets
- Involved in [Tr@in-MD project](#) (2007-2009) – Intelligent transport of dangerous goods by rail, French research programme in experimentation and innovation in land transport (ANR-PREDIT)

Sept. 2012 – present

### Secondment agreement with Railenium

- Involved in [FLEXY](#) project coordinated by SNCF (Starting year: 2022)
- Involved in [Shift2Rail](#)-funded projects [X2Rail-2](#) (2017-2020) and [X2Rail-4](#) (2020-2023)
- Involved in [TC-Rail project](#) (2017-2021) and '[Train-Autonomie Voyageurs](#)' project (2018-2023), French innovative and research programme
- Involved in [SATRAIL feasibility study](#) (2016): navigation and communication satellites for railway CCS

Jan. 2017 – present **Secondment agreement with Certifer**  
– Recognised as an assessor to realise ISA missions (Independent Safety Assessment)  
– Involved in [Grand Paris Express](#) control-command system assessment

Oct. 2002 – Feb. 2007 **ATER, Temporary Research and Teaching Attaché – UPHF**  
**Université Polytechnique Hauts-de-France**, Valenciennes, concurrently with the preparation of my doctoral thesis  
– Training of IUT (A-Level+2 years) and engineering students to dependability methods and tools, work-flow management and algorithmic programming  
– Research works in railway safety according to railway safety standards, applying these works in [UGTMS / MODUrban European projects](#) (urban guided transports)

March 2002 – Aug. 2002 **Engineer – critical applications – Fraunhofer IVI**  
**Fraunhofer Institute for Transportation and Infrastructure Systems**, Dresden, Germany, to underline weaknesses and risk level of video surveillance equipment installed on station platforms. System functional modelling using UML, FMEA, and Fault Tree. Work within the [KOMPAS project](#) funded by the German Federal Ministry of Research

## EDUCATION AND QUALIFICATION

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2008 **Qualification to the function of ‘Maître de conférence’**, *Section 61* - Computer science engineering, automatic and signal treatment, France

Oct. 2002 – Dec. 2006 **PhD. Thesis — UPHF**  
**Université Polytechnique Hauts-de-France**, Valenciennes, France  
**PhD in Automation and Computing Sciences**  
*Thesis title*: Contribution to safety evaluation of complex guided transportation systems

Sept. 2001 – Sept. 2002 **Master Degree — LAMIH**  
**Laboratory of Industrial and Human Automation Control, Mechanical engineering and Computer Science**, Valenciennes, France  
*Master thesis title*: Fault tree modelling by neural networks for the safety evaluation of complex systems  
*Speciality*: Industrial and Human Automation Control

Sept. 1999 – Aug. 2002 **Engineering Degree — INSA Hauts-de-France**  
**National Institutes of Science and Technology** (ex-ENSIAME), Valenciennes, France  
*Speciality*: automation and computing

## INVITED TALKS / LECTURES

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2018 **Satellite positioning in the transport domain: applications and challenges**, Workshop 4: Navigation Technologies and Geographic Information System for a better traffic management, Data Science and Mobility Conference supported by SBB/CFF/FFS, Lausanne, Switzerland

2012 **RAMS terminology in standardization**, tutorial session at the 9<sup>th</sup> FORMS-FORMAT symposium, Braunschweig, Germany

2009 **INRETS activities on Galileo, results of recent scientific research**, session panel “GNSS on tracks: railroad”, the 7<sup>th</sup> Munich Satellite Navigation Summit, Germany

2008 **A dependability approach for integrating a satellite positioning system in a railway application**, invited lecture for Braunschweiger Verkehrskolloquium, DLR -Deutsches Zentrum für Luft- und Raumfahrt (German Center for Air- and Space-flight), Braunschweig, Germany

## CONFERENCE ORGANISATION

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- 2024, 2022, 2020, 2018, 2016 Member of the program committee of the Lambda-Mu conference, French reference conference on risk, safety, and reliability topics
- 2021 Member of the program committee of the 16<sup>th</sup> IFAC–CTS'2021 conference
- 2012 Member of the program committee of 9<sup>th</sup> FORMS-FORMAT symposium

## REFEREE ACTIVITY

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### Referee activity for scientific and research institutions

- 2018 Assessment committee member of the risk research axis of the CETU - Tunnel Study Centre, French Ministry of Ecological Transition
- 2013 Research project reviewer, French National Agency for Research Expertise

### Referee activity for journals

Journal of Traffic and Transportation Engineering – International Journal of Rail Transportation – Computing – Reliability Engineering & System Safety – IEEE Intelligent Transportation Systems Magazine – Journal of Rail and Rapid Transit – Simulation Modelling Practice and Theory

### Participation in doctoral committees

- 2022 Doctoral com. member: Ouail HIMRANE, ESTAS Lab, Université Gustave Eiffel
- 2021 Doctoral com. member: Ayyoub IMAKHLAF, Heudiasyc Lab, University of Technology of Compiègne
- 2018 Doctoral com. member: Manel BRINI, Heudiasyc Lab, University of Technology of Compiègne
- 2017 Doctoral com. member: Subeer RANGRA, Heudiasyc Lab, University of Technology of Compiègne
- 2016 Doctoral com. member: Cyril LEGRAND, ESTAS Lab, Université Gustave Eiffel

### Participation in selection boards

- 2023 Selection board member: research engineer position in computer science, COSYS department, Université Gustave Eiffel
- 2022 Selection board member: lecturer-researcher position (ECC) in computer science, University of Technology of Compiègne

## RESEARCH SUPERVISION

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### Contractual researcher supervision

- 2021-2022 Supervision of Rim Saddem-Yagoubi, Université Gustave Eiffel, post-doctoral researcher, *formal approach for the safety of railway moving block systems*
- 2020-2022 Supervision of Insaf Sassi, Railenium, research engineer, *safety assessment of train integrity monitoring and satellite-based localisation systems*
- 2020 Supervision of Nourdine Aït Tmazirte, Railenium, research engineer, *safety behaviour of satellite-based localisation systems*
- 2013-2015 Supervision of Thi Phuong Khanh Nguyen, Université Gustave Eiffel, post-doctoral researcher, *dynamic reliability and availability assessment of satellite-based localisation and communication systems in railways*
- 2013-2016 Kiswendsida Abel Ouedraogo, Université Gustave Eiffel, post-doctoral researcher, *allocation of safety integrity levels in railway systems*

### PhD student supervision

- 2020-present Supervision of Mohammed Chelouati, Railenium & Université Gustave Eiffel / COSYS / ESTAS, *safety assurance of autonomous train*
- 2018-2022 Supervision of Ouail Himrane, Université Gustave Eiffel / COSYS / ESTAS, *formal approach for the safety of satellite-based localisation systems in railways*

2012-2016 Supervision of Cyril Legrand, Railenium & Université Gustave Eiffel / COSYS / ESTAS, *safety appraisal of satellite-based localisation systems in railways*

#### Master student supervision

- 2016 Supervision of the specialised master internship of Gaël Ouensavi, Polytech'Lille, *statistical evaluation of performance indicators for a GNSS system embedded in train*
- 2012 Supervision of the Master thesis of Nacer Boumeis, Université de Lorraine, *preliminary safety and reliability study for an LTE-based wireless system*
- 2012 Supervision of the Master thesis of Olimpia Hoinaru, Université de Lille, *formalisation of performance criteria using the Iglos terminology management tool*
- 2009 Supervision of the Master thesis of Djily Diaw, Polytech'Lille, *performance evaluation of a satellite tracking system for freight wagons*
- 2008 Supervision of the Master thesis of Mathias Ruiz-Huidobro, INSA Hauts-de-France, *development of RAIM algorithms - Receiver Autonomous Integrity Monitoring*

## PERSONAL SKILLS

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### Language skills

- French** Mother tongue
- English** Understanding (listening B2, reading C1), speaking (production C1, interaction B2), writing (C2)
- German** Understanding (listening B1, reading B2), speaking (production B1, interaction B1), writing (B1)
- Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
- [Common European Framework of Reference for Languages](#)

### Areas of expertise

- RAMS analysis** Reliability, Availability, Maintainability, and Safety methods: PHA, FME(C)A, Fault tree, Markov chain
- Railway systems** Control-command and signalling: ERTMS-ETCS / CBTC / moving block principles, recognised expertise in satellite-based railway applications
- Normative and regulatory framework**
- Railway standard: EN50126 (RAMS), EN50128 (software safety), EN50129 (safety systems for signalling), EN50159 (Safety-related communication) – CERTIFER training certificate
  - European regulation: CSM-RA – Common Safety Method on risk evaluation and assessment
- Complex system engineering**
- Modelling languages: UML, SysML (Eclipse Papyrus SysML 1.6)
  - Modelling tools: Petri Nets, temporal automata
- Programming languages** C, C++
- Simulation tools** Matlab / Simulink, GRIF, UPPAAL, UPPAAL-SMC

## PUBLICATIONS

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### ARTICLES IN INTERNATIONAL JOURNALS

- [1] M. Chelouati, A. Boussif, **J. Beugin**, and E.-M. El-Koursi. "A Risk-Based Decision-Making Process for Autonomous Trains Using POMDP: Case of the Anti-Collision Function". In: *IEEE Access* 12 (2024), pp. 5630–5647. DOI: 10.1109/ACCESS.2023.3347500.
- [2] I. Sassi, E.-M. El-Koursi, **J. Beugin**, S.D. Iovino, and N. Ricevuto. "Defining Safety Requirements of New On-Board Functions Essential to ETCS Level 3 Operation: The Train Integrity and Train Length Determination". In: *IEEE Open Journal of Intelligent Transportation Systems* (2024).
- [3] A. Boussif, A. Tonk, **J. Beugin**, and S. Collart-Dutilleul. "Operational Risk Assessment of Railway Remote Driving System". In: *Safety and Reliability journal* (2023). DOI: 10.1080/09617353.2023.2226965.

- [4] M. Chelouati, A. Boussif, **J. Beugin**, and E.-M. El-Koursi. "Graphical safety assurance case using Goal Structuring Notation (GSN) - challenges, opportunities and a framework for autonomous trains". In: *Reliability Engineering & System Safety (RESS)* 230 (2023). DOI: 10.1016/j.res.2022.108933.
- [5] O. Himrane, **J. Beugin**, and M. Ghazel. "Implementation of a Model-Oriented Approach for Supporting Safe Integration of GNSS-Based Virtual Balises in ERTMS/ETCS Level 3". In: *IEEE Open Journal of Intelligent Transportation Systems* 4 (2023), pp. 294–310. DOI: 10.1109/OJITS.2023.3267142.
- [6] D.I. De Almeida Pereira, O. Himrane, P. Bon, and **J. Beugin**. "From French National Signalling Systems to ERTMS: Considering the Evolution of Trackside Systems". In: *International Journal of Signal Processing Systems* 9.2 (2021), pp. 12–16. DOI: 10.18178/ijsp.9.2.11-16.
- [7] T. P. K. Nguyen, **J. Beugin**, M. Berbineau, and J. Marais. "Application of fuzzy theory for identifying the required availability of an autonomous localisation unit in European Train Control System". In: *Journal of Intelligent Transportation Systems: Technology, Planning, and Operations* 23.3 (2019), pp. 265–281. DOI: 10.1080/15472450.2018.1525533.
- [8] **J. Beugin**, C. Legrand, J. Marais, M. Berbineau, and E.-M. El-Koursi. "Safety Appraisal of Localization Systems Based on GNSS Used in Train Spacing Control". In: *IEEE-Access* 6.1 (2018), pp. 9898–9916. DOI: 10.1109/ACCESS.2018.2807127.
- [9] K.-A. Ouedraogo, **J. Beugin**, E.-M. El-Koursi, J. Clarhaut, D. Renaux, and F. Lisiecki. "Toward an application guide for Safety Integrity Level allocation in railway systems". In: *Risk Analysis journal* 38.8 (2018), pp. 1634–1655. DOI: 10.1111/risa.12972.
- [10] J. Marais, **J. Beugin**, and M. Berbineau. "A survey of GNSS-based Research and Developments for the European railway signaling". In: *IEEE-Transactions on Intelligent Transportation Systems* 18.10 (2017), pp. 2602–2618. DOI: 10.1109/TITS.2017.2658179.
- [11] C. Legrand, **J. Beugin**, B. Conrard, J. Marais, M. Berbineau, and E.-M. El-Koursi. "From extended integrity monitoring to the safety evaluation of satellite-based localisation". In: *Journal of Reliability Engineering and System Safety (RESS)* 155 (2016), pp. 105–114. DOI: 10.1016/j.res.2016.04.011.
- [12] T. P. K. Nguyen, **J. Beugin**, M. Berbineau, and M. Kassab. "A new analytical approach to evaluate the critical-event probability due to wireless communication errors in Train Control Systems". In: *IEEE-Transactions on Intelligent Transportation Systems* 18.6 (2016), pp. 1380–1392. DOI: 10.1109/TITS.2016.2604043.
- [13] T. P. K. Nguyen, **J. Beugin**, and J. Marais. "Method for evaluating an extended Fault Tree to analyse the dependability of complex systems: application to a satellite-based railway system". In: *Journal of Reliability Engineering & System Safety (RESS)* 133 (2015), pp. 300–313. DOI: 10.1016/j.res.2014.09.019.
- [14] **J. Beugin** and J. Marais. "Simulation-based evaluation of dependability and safety properties of satellite technologies for railway localization". In: *Journal of Transportation Research, part C (Emerging Technologies)* 22 (2012), pp. 42–57. DOI: 10.1016/j.trc.2011.12.002.
- [15] **J. Beugin**, A. Filip, J. Marais, and M. Berbineau. "Galileo for railway operations: question about the positioning performances analogy with the RAMS requirements allocated to safety applications". In: *European Transport Research Review (ETRR)* 2.2 (2010), pp. 93–102. DOI: 10.1007/s12544-010-0032-3.
- [16] **J. Beugin** and J. Marais. "Application des principes de la sûreté de fonctionnement à l'évaluation du service de localisation par satellites dans le domaine ferroviaire". In: *Recherche Transports Sécurité (RTS), Lavoisier* 99 (2008), pp. 89–103. DOI: 10.3166/rts.99.89-103.
- [17] A. Filip, **J. Beugin**, J. Marais, and H. Mocek. "Interpretation of the Galileo Safety-Of-Life Service by Means of Railway RAMS Terminology". In: *Transactions on Transport Sciences, Ministère des transports Tchèques* 1.2 (2008), pp. 61–68. DOI: 10.5507/tots.2008.009.
- [18] **J. Beugin**, D. Renaux, and L. Cauffriez. "A SIL Quantification Approach based on an Operating Situation Model for Safety Evaluation in Complex Guided Transportation Systems". In: *Journal of Reliability Engineering & System Safety (RESS)* 92.12 (2007), pp. 1686–1700. DOI: 10.1016/j.res.2006.09.022.

#### ARTICLES IN INTERNATIONAL CONFERENCES

- [19] M. Chelouati, A. Boussif, **J. Beugin**, and E.-M. El-Koursi. “A framework for risk-awareness and dynamic risk assessment for autonomous trains”. In: *ESREL 2022 - 32nd European Safety and Reliability Conference* (Aug. 28–Sept. 1, 2022). Dublin, Ireland, 2022.
- [20] M. Chelouati, A. Boussif, **J. Beugin**, and E.-M. El-Koursi. “Argumentaire de sécurité graphique pour l’assurance de sécurité des trains autonomes”. In: *23ème congrès Lambda-Mu* (Oct. 11–13, 2022). Paris-Saclay, France, 2022.
- [21] R. Saddem-Yagoubi, **J. Beugin**, and M. Ghazel. “A Formal Modelling Framework for Moving Block Systems in the PERFORMINGRAIL project”. In: *RAILWAYS 2022 - 5th International Conference on Railway Technology: Research, Development and Maintenance* (Aug. 22–25, 2022). Montpellier, France, 2022.
- [22] R. Saddem-Yagoubi, **J. Beugin**, and M. Ghazel. “Methodology Framework for Modelling ETCS-L3 Moving Block System”. In: *TRA 2022 - 9th Transport Research Arena* (Nov. 14–17, 2022). Lisbon, Portugal, 2022.
- [23] R. Saddem-Yagoubi, **J. Beugin**, and M. Ghazel. “Verification Framework for Moving Block System Safety: Application on the Loss of Train Integrity Use Case”. In: *11th TRISTAN conference, Triennial Symposium on Transportation Analysis* (June 19–25, 2022). Mauritius Island, 2022.
- [24] R. Saddem-Yagoubi, M.-U. Sanwal, S. Libutti, M. Benerecetti, **J. Beugin**, F. Flammini, M. Ghazel, B. Janssen, S. Marrone, F. Mogavero, R. Nardone, A. Peron, C. Seceleanu, and V. Vittorini. “Toward Usable Formal Models for Safety and Performance Evaluation of ERTMS/ETCS Level 3: The PERFORMINGRAIL Project”. In: *ESREL 2022 - 32nd European Safety and Reliability Conference* (Aug. 28–Sept. 1, 2022). Dublin, Ireland, 2022.
- [25] A. Tonk, M. Chelouati, A. Boussif, **J. Beugin**, and E.-M. El-Koursi. “A Safety Assurance Methodology for Autonomous Trains”. In: *TRA 2022 - 9th Transport Research Arena* (Nov. 14–17, 2022). Lisbon, Portugal, 2022.
- [26] O. Himrane, **J. Beugin**, and M. Ghazel. “Toward Formal Safety and Performance Evaluation of GNSS-based Railway Localisation Function”. In: *CTS 2021, 16th IFAC Symposium on Control in Transportation Systems* (June 8–10, 2021). Lille, France, 2021.
- [27] A. Tonk, A. Boussif, **J. Beugin**, and S. Collart-Dutilleul. “Towards a Specified Operational Design Domain for a Safe Remote Driving of Trains”. In: *ESREL 2021 - 31st European Safety and Reliability Conference* (Sept. 19–23, 2021). Angers, France, 2021.
- [28] A. Boussif, S. Collart-Dutilleul, F. Baranowski, **J. Beugin**, and W. Schön. “Démonstration de la sécurité opérationnelle de la téléconduite des trains : contexte, méthodologie et défis”. In: *22ème congrès Lambda-Mu, e-congrès*. France, 2020.
- [29] D. I. De Almeida Pereira, O. Himrane, P. Bon, and **J. Beugin**. “From French National Signalling Systems to ERTMS: Considering the Evolution of Trackside Systems”. In: *ICCSIT 2020 - 13th International Conference on Computer Science and Information Technology, virtual attendance* (Oct. 14–16, 2020). The Netherlands, 2020.
- [30] O. Himrane, **J. Beugin**, and M. Ghazel. “Proposition d’une approche orientée modèles pour évaluer la sécurité des systèmes de signalisation ferroviaire utilisant les GNSS”. In: *22ème congrès Lambda-Mu, e-congrès* (Oct. 13, 2020). France, 2020.
- [31] O. Himrane, **J. Beugin**, and M. Ghazel. “Towards a Model-Based Safety Assessment of Railway Operation Using GNSS Localization”. In: *ESREL 2020 and PSAM 15 - 30th European Safety and Reliability Conference and 15th Probabilistic Safety Assessment and Management Conference, virtual attendance* (Nov. 1–5, 2020). Venice, Italy, 2020.
- [32] I. Sassi, **J. Beugin**, M. Sallak, and N. Ait Tmazirte. “Allocating imprecise safety targets in satellite-based localization systems used in railway signaling operations”. In: *ESREL 2020 and PSAM 15 - 30th European Safety and Reliability Conference and 15th Probabilistic Safety Assessment and Management Conference, virtual attendance* (Nov. 1–5, 2020). Venice, Italy, 2020.
- [33] D. Mailland, M. Schaff, A. Thionville, and **J. Beugin**. “Comparaison de l’approche sécurité multi-domaines”. In: *21ème congrès Lambda-Mu* (Oct. 16–18, 2018). Reims, France, 2018.

- [34] J. Marais, **J. Beugin**, J. Poumailloux, and M. Gandara. “EGNOS service evaluation in railway environment for safety-critical operations”. In: *7<sup>th</sup> Transport Research Arena (TRA)* (Apr. 16–19, 2018). Vienna, Austria, 2018.
- [35] **J. Beugin**, K.-A. Ouedraogo, E.-M. El-Koursi, J. Clarhaut, D. Renaux, and F. Lisiecki. “Pratiques partagées ou divergentes d’allocation de niveaux d’intégrité de sécurité dans le domaine ferroviaire”. In: *20ème congrès Lambda-Mu* (Oct. 11–13, 2016). Saint-Malo, France, 2016.
- [36] K.-A. Ouedraogo, **J. Beugin**, E.-M. El-Koursi, J. Clarhaut, D. Renaux, and F. Lisiecki. “Safety Integrity Level Allocation shared or Divergent Practices in the Railway Domain”. In: *IRSC - International Railway Safety Council* (Oct. 2–7, 2016). Paris, France, 2016.
- [37] C. Legrand, **J. Beugin**, B. Conrard, J. Marais, M. Berbineau, and E.-M. El-Koursi. “Approach for evaluating the safety of a satellite-based train localisation system through the extended integrity concept”. In: *ESREL 2015 - European Safety and Reliability conference* (Sept. 7–10, 2015). Zürich, Switzerland: in Podofillini et al. Eds, Taylor & Francis Group, London, ISBN 978-1-138-02879-1, 2015, pp. 1297–1305.
- [38] H. Manz, E. Schnieder, D. Stein, M. Spindler, M. Lauer, C. Seedorff, A. Baudis, U. Becker, **J. Beugin**, T. P. K. Nguyen, and J. Marais. “GaLoROI: Satellite-based localization in railways”. In: *IC-ARE’15, International Congress on Advanced Railway Engineering* (Mar. 2–4, 2015). Istanbul, Turkey, 2015.
- [39] T. P. K. Nguyen, **J. Beugin**, M. Kassab, and M. Berbineau. “Analytical approach for evaluating LTE communication errors in train control application”. In: *IEEE ICC-DVC, International Conference on Communications- 1st workshop on Dependable Vehicular Communications* (June 8–12, 2015). London, UK, 2015.
- [40] K.-A. Ouedraogo, **J. Beugin**, E.-M. El-Koursi, J. Clarhaut, D. Renaux, and F. Lisiecki. “Harmonized methodology for Safety Integrity Level allocation in a generic TCMS application”. In: *ESREL 2015 - European Safety and Reliability conference* (Sept. 7–10, 2015). Zürich, Switzerland: in Podofillini et al. Eds, Taylor & Francis Group, London, ISBN 978-1-138-02879-1, 2015, pp. 3579–3587.
- [41] C. Legrand, **J. Beugin**, B. Conrard, J. Marais, M. Berbineau, and E.-M. El-Koursi. “Causal analysis methodology of multisensor systems based on GNSS”. In: *Railways 2014, the 2nd International Conference on Railway Technology: Research, Development and Maintenance* (Apr. 8–11, 2014). Ajaccio, Corsica, France, 2014.
- [42] T. P. K. Nguyen, **J. Beugin**, M. Kassab, and M. Berbineau. “Modelling Communication Based Train Control system for dependability analysis of the LTE Communication network in train control application”. In: *IEEE EMS-8<sup>th</sup> European Modelling Symposium on Mathematical Modelling and Computer Simulation* (Oct. 21–23, 2014). Pisa, Italy, 2014.
- [43] T. P. K. Nguyen, **J. Beugin**, and J. Marais. “RAMS analysis of GNSS based localisation system for the train control application”. In: *IEEE ComManTel 2014, the 2nd International Conference on Computing, Management and Telecommunications* (Apr. 27–29, 2014). Da Nang, Vietnam, 2014.
- [44] K.-A. Ouedraogo, **J. Beugin**, E.-M. El-Koursi, J. Clarhaut, D. Renaux, and F. Lisiecki. “Allocation rules of Safety Integrity Levels in a generic TCMS application”. In: *10th FORMS-FORMAT symposium (Formal Methods for Automation and Safety in Railway and Automotive Systems)* (Sept. 30, 2014–Oct. 2, 2015). Braunschweig, Germany, 2014.
- [45] O. Hoinaru, **J. Beugin**, and J. Marais. “Contribution to a terminology related to dependability for the qualification of an on-board satellite-based system”. In: *In proceedings of the 2nd ICTIS conference (International Conference on Transportation Information and Safety)* (June 28–July 1, 2013). Wuhan, China, 2013.
- [46] C. Legrand, **J. Beugin**, B. Conrard, J. Marais, M. Berbineau, and E.-M. El-Koursi. “Sensitivity Assessment to Analyse Dependability of a Multisensor Localisation System based on GNSS”. In: *IEEE ITS-T, Intelligent Transportation Systems-Telecommunications conference* (Nov. 5–7, 2013). Tampere, Finland, 2013.

- [47] T. P. K. Nguyen, **J. Beugin**, and J. Marais. "Dependability evaluation of a GNSS and ECS based localisation unit for railway vehicles". In: *IEEE ITS-T, Intelligent Transportation Systems-Telecommunications conference* (Nov. 5–7, 2013). Tampere, Finland, 2013.
- [48] **J. Beugin** and J. Marais. "Propriétés de sûreté de fonctionnement d'un système embarqué de localisation par satellites dédié à la sécurité ferroviaire". In: *18ème congrès Lambda-Mu* (Oct. 16–18, 2012). Tours, France, 2012.
- [49] J. Marais and **J. Beugin**. "Evaluation method of GNSS-based positioning functions for safety applications in operational conditions". In: *Transport Research Arena - TRA conference* (Apr. 23–26, 2012). Athens, Greece, 2012.
- [50] J. Marais and **J. Beugin**. "Integrity in safe railway GNSS-based applications". In: *ITST 2010 - 10<sup>th</sup> International Conference on Intelligent Transport Systems Telecommunications* (Nov. 9–11, 2010). Kyoto, Japan, 2010.
- [51] **J. Beugin**, A. Filip, and J. Marais. "Simulation approaches to evaluate dependability of satellite-based positioning services in railway transportation applications". In: *ESREL 2009 - European Safety and Reliability conference* (Sept. 7–10, 2009). Prague, Czech Republic: in Briš, Guedes & Martorell Eds, Taylor & Francis Group, ISBN 978-0-415-55509-8, 2009, pp. 2331–2337.
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