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Professional Experience

2015-Present: Research Scientist, Data61 | CSIRO, ADAIT Team, Sydney Australia

- **Australia Singapore Strategic Collaboration Partnership/ARC Linkage Project** – Principal Investigator.
- **Project leader:** “BSM position investigation from DSRC-equipped connected-vehicles”, Road Safety for Transport.
- **Scrum master/transport simulation leader** in the: “Premier’s Innovation Initiative for Traffic Congestion”, TfNSW.
- **Traffic modeller** in the project: “Sydney large-scale traffic simulation and optimization”.
- **Organizer** of various Special Interest-Sessions in ITS World Congress 2016-2018 on big-data, CV/AV trials, MaaS, etc.
- **Tutor** of various internship summer scholars – Taste of Research Program in Data61.
- **Reviewer** for TRB, IFAC WC, Journal of ITS, Journal Simulation Modelling Practice and Theory, etc.
- **Award:** “2018 Your leadership Voice: Women in Focus Program”, Monash Business School.
- **Business engagement**, project management, project writing proposals.

2012-2015 (3 years): Researcher/Assistant Professor, ENSGSI University, Nancy, France.

- **Research:** Modelling and 3D simulation of transportation systems in smart cities, Evolutionary Algorithms.
- **Teaching:** Flux simulation (FlexSim, Arena), Graph theory (Scilab), Optimization and operational research, Discrete-event Systems Control (Petri Nets, Grafcet, Finite State Automata), International project management (SCRUM), Production quality.
- **Supervising:** tutor of 2 teams of 5 students/year and master students.
- **Project writing proposals:** ADEME 2015(coordinator), ANR 2014.

2011-2012 (1 year): Assistant Professor, University Lumière II, Lyon, Computer Science & Statistics

- **Teaching:** programming & algorithmic techniques in Visual Basic.

2009-2012 (3 years): PhD Thesis, GIPSA-lab, Grenoble, France, Automatic Control Department

Title: “Probabilistic approach for the event-based control of stochastic switching systems”

- Analysis and modelling of hybrid dynamical systems (HDS) using Markov Chain.
- Construction of a probabilistic energy model for event-based controlled HDS.

2008 – 2009 (1 year): Oracle database programmer, TeamNet Collaborate, Bucharest, Romania

- «PL/SQL» Programming, «Oracle Forms and reports».

Education

2009-2012: PhD Thesis, GIPSA-lab, Automatic Control Department,
National Polytechnic Institute of Grenoble, France

2004-2009: Engineer Diploma in Automatic Control and Industrial informatics,
Polytechnic University of Bucharest, Romania, Automatic Control Faculty

Engineering Thesis in **GIPSA-lab, France, Automatic Control Department**

Title: “Home support for seniors: statistical inference of sensor data for monitoring activity”.

- Process data from the infrared sensors installed in the homes of elderly people living alone.
- Build a reference behavioural model for the long-term monitoring against the loss of autonomy.

Awards and certifications

- **2017** – Awarded the “2018 Your Leadership Voice: Women in Focus Program” by Monash Business School, Melbourne, Australia. This program will provide training and dedicated workshops for improving the leadership and project management capabilities for women in science.
- **2017** – 10-year Membership certification award to Data61 – team award from ITS Australia.
- **2017** – SCRUM Master Certification for applying Agile Methodology on industrial projects.
- **2015** – National ITS Awards on Research Excellence – team award based on research outcome of the ADAIT group.
- **2015-2016** – Aimsun: from macro to microscopic simulation, OD demand and path - training certifications.
- **2013** – 1st prize at the International 3D Simulation Competition organized by [FlexSim France](#) as group leader.
- **2011** – Elected Vice-president of the PhD Student Association “Gipsa-Doc” from Grenoble, France.
- **2009** – “Allocation de Recherche Award” from the French Government for undergoing PhD Studies.
- **2009** – ERASMUS award for international research exchange program in France.
- **2009** – Oracle Academy Certificates: PL/SQL 11g, SQL 9i.
- **2008** – Cisco Info-Academy Certificates: CCNA 1, 2, 3.
- **1997-2003**: 1st and 2nd prizes for Regional Competitions in Mathematics/Physics in Romania as a student.

Tutoring and supervising

- **Nov. 2017 – Feb. 2018**: Tutor of Zheyuan Liu, “Taste of Research” summer student in Data61 who worked on the “Traffic Simulation for Congestion Management in Sydney”.
- **Nov. 2016 – Feb. 2017**: Tutor of 2 summer students in Data61, “Taste of Research” program:
 - Phoebe Ho from University of NSW: “Dynamic Traffic Assignment Simulation for Pymont”.
 - Chengkun Zhang from University of Sydney: “Building a web-based visualization platform for Connected-Vehicles”.
- **Feb. 2015 – Jun. 2015**: Tutor of Mirian Benavides, Master Research Student, University of Lorraine, France, working on integrating mesoscopic traffic simulation models with air pollution estimation methods in an eco-neighbourhood.
- **2012/2015**: Tutor of 2 teams of 5 students/year working on 3D traffic simulation of Nancy Grand Coeur eco-neighbourhood and various international projects in collaboration with Polytechnic School of Montreal, Canada.

Languages:

- **Romanian** – maternal,
- **French** – professional (DELF B2: 80/100),
- **English** – professional (IELTS Academic 7.5/9),
- **Spanish** – beginner.

Organizing and social skills

2015 - Present:

- **Principal Investigator** in the **Australia-Singapore Strategic Collaboration initiative** which brings together high-calibre researchers from world-leading research institutions such as National University of Singapore (**NUS**) and Nanyang Technological University (**NTU**) from Singapore together with Swinburne University of Technology (**SUT**) and **Data61** from Australia. The objective of this proposal is to build an international and unique collaboration by merging complementary expertise in order to deal with key challenges in traffic incident analysis and management: two major problems commonly faced by both countries. This is the first time that a multi-disciplinary team is formed to tackle in a holistic way the problem of incident analysis and management in complex and multi-modal traffic networks. This initiative has 2 phases of acceptance:
 - The Singapore proposal - recently approved by the SDSC committee in Singapore, valued at 1.2 million SGD to match the Australian side.
 - The ARC Linkage project proposal which is currently under way for final submission in Australia.
- **Project leader** of the project “An investigation of Basic Safety Message Positioning Reporting of selected vehicles in **CITI**”. CITI is a Transport for New South Wales Cooperative Intelligent Transport Initiative. The aim was to analyse the GPS positioning accuracy of connected vehicles equipped with DSRC, from the transmitted/received Basic Safety Messages (BSM). The data consisted of almost 400 million BSMs recorded by trucks and light vehicles belonging to the Road Safety Technology Centre of TfNSW. I was responsible with the project proposition, budgeting, and delivery.
- **Scrum master and traffic simulation leader** for the project: “**Premier’s Innovation Initiative**” (PII) for building a big-data platform to address the congestion in Sydney. As a Scrum Master I apply the **Agile Methodology** in the group by organizing daily and weekly Sprint meetings, as well as tracking and prioritizing tasks for the project. As a traffic simulation leader, I have

been responsible for the modelling, development and deployment of: large scale traffic simulation, calibration and validation, mesoscopic and microscopic traffic modelling and **SCATSIM** integration for Victoria Road Corridor.

- **ITS World Congress: Organizer** of various **Special Interest Sessions (SIS)** and **live booths** for presenting the ADAIT capability and real-time cloud-based platform for smart analytics in transportation. This resulted in a prosperous development of our business relations which have currently brought us ongoing collaborations and partnering with AECOM, KEOLIS DOWNER, JYW Consulting, Sydney Airport, CT. The **SIS** that I have organised so far are:
 - 2016: [Role of big data analytics and transportation modelling for fast-changing urban infrastructure](#)
 - 2017: Evaluation of connected and autonomous vehicle trials.
 - 2017: On Demand Passenger Transport – Innovative Operation Models.
 - 2018: Predictive Analytics for Intelligent Transportation
 - 2018: Intelligent Operational Models for MaaS.
- **4th of June 2018: Invited Speaker** in the panel on “Autonomous and Connected Vehicles” in the IoT Festival 2018.
- **May 2017: Invited speaker** at the University of Sydney for talking about the “Control for connected vehicles”.

2012 - 2015:

- **Coordinator** of the project writing proposal: ADEME - MODEVAL URBA, 2015.
- **Collaborator in project proposal writing:** IDEAS for ANR (French equivalent of ARC) aiming at constructing a collaborative platform for creating innovative ideas using agent-based modelling and knowledge management initiatives.
- **Organizing member** of the [48 Hours of Innovation](#), an annually creativity challenge in which students from different universities from France and around the globe (Canada, Colombia, Chile, etc.) work together to apply creativity methods for producing new ideas to solve several problems from various industrial partners.
- **Invited Speaker** for the Project Management seminar at the [Technical University of Kaiserslautern, Germany](#).

2011 - 2012:

- **Vice-president** of the PhD Student Association **GipsaDoc**; I was responsible for organizing: scientific seminars and cultural integration events of new PhD students.
- **Organizing member** of the 2012 CIFA Conference¹ in Grenoble.

Keywords

- Transportation modelling and simulation, SCATSIM integration, incident detection and response plan generation, connected vehicles, DSRC, large scale transportation systems, data-driven modelling
- Air quality monitoring, evaluation and data-driven prediction, integrated traffic and air pollution simulation models
- Evolutionary algorithms, multi-objective optimization, event-driven simulations, Markov Chains, Hybrid Systems
- Agile methodology, project management, business engagement, industrial partnership development, international collaboration

Publications

International Journals

1. **Mihaita A. S.**, Benavides, M., Camargo, C. Cai, Predicting air quality by integrating a mesoscopic traffic simulation model and air pollutant estimation models, [International Journal of Intelligent Transportation System Research \(IJITSR\)](#), In Press June 2018, (SJR=0.209, SNIP = 0.468).
2. **Mihaita A. S.**, Dupont L., Camargo M., Multi-objective traffic signal optimization using 3D mesoscopic simulation and evolutionary algorithms, [Simulation Modelling Practice and Theory \(SIMPAT\)](#), <https://doi.org/10.1016/j.simpat.2018.05.005>, (IF = 2.063, H5=49).
3. Wen Tao, **Mihaita A.S.**, Nguyen Hoang, Cai Chen, Integrated Incident decision support using traffic simulation and data-driven models. [Transportation Research Record: Journal of the Transportation Research Board \(TRR\)](#), (IF = 0.552, H5 = 76) (selected for journal publication after presentation in TRB 2018).
4. **Mihaita A.S.**, Mocanu S., Lhoste, P., "Probabilistic analysis of a class of continuous-time stochastic switching systems with event-driven control", [European Journal of Automation \(JESA\)](#), July 2016, H5 =17.
5. Monticolo, D., **Mihaita, A.S.**, Darwich, H., Hilaire, V., "An Agent Based System to build project memories during engineering projects", [Knowledge Based Systems Journal \(KBS\)](#), January 2014, (IF = 4.62, H5=74).
6. Monticolo, D. **Mihaita A.S.** "[A multi Agent System to Manage Ideas during Collaborative Creativity Workshops](#)", [International Journal of Future Computer and Communication \(IJFCC\)](#), vol 3, nr 1, February 2014, P66-71, (extended version of the paper presented in **ICFCC** 2013), H5 = 12.
7. **Mihaita A.S.**, Mocanu S., "Simulation en temps continu pour la commande orientée événements des systèmes stochastiques à commutation", [European Journal of Automation \(JESA\)](#), 45 1-3 (157-172), Oct 2011. (selected for publication after the **MSR** Conference Lille 2011), H5 =17.

¹ www.gipsa-lab.grenoble-inp.fr/colloque/CIFA2012/index.php

Conference proceedings

1. **Mihaita A. S.**, Dupont L., Cherry O., Camargo M., Cai C., Air quality monitoring using stationary versus mobile sensing units: a case study from Lorraine, France, [25th ITS World Congress \(ITSWC 2018\)](#), Copenhagen, Denmark, 17-21st of September 2018 (accepted for presentation), (H5=11).
2. Wen Tao, **Mihaita A.S.**, Nguyen Hoang, Cai Chen, Integrated Incident decision support using traffic simulation and data-driven models. [Transportation Research Board 97th Annual Meeting \(TRB 2018\)](#), Washington D.C., January 7-11, 2018, H5=42.
3. **Mihaita A. S.**, Tyler Paul, Wall John, Vecovsky Vanessa, Cai Chen, Positioning and collision alert investigation for DSRC-equipped light vehicles through a case study in CITT, [24th World Congress on Intelligent Transportation Systems \(ITSWC 2017\)](#), Montreal, Canada, 29 October - 2 November 2017, H5=11.
4. **Mihaita A. S.**, Cai Chen, Chen Fang, Event-triggered control for improving the positioning accuracy of connected vehicles equipped with DSRC, [International Federation of Automatic Control World Congress \(IFAC WC 2017\)](#), 9-14 July 2017, Toulouse, France, H5 = 32.
5. **Mihaita A. S.**, Tyler Paul, Menon Aditya, Wen Tao, Ou Yuming, Cai Chen, Chen Fang, "An investigation of positioning accuracy transmitted by connected heavy vehicles using DSRC", [Transportation Research Board 96th Annual Meeting \(TRB 2017\)](#), Washington D.C., January 8-12, 2017, H5=42.
6. **Mihaita A. S.**, Benavides, M., Camargo, M., "Integrating a mesoscopic traffic simulation model and a simplified NO2 estimation model", [23rd World Congress on Intelligent Transportation Systems \(ITSWC 2016\)](#), Melbourne, Australia, 10-14 October 2016, H5=11.
7. **Mihaita A.S.**, Camargo, M., Lhoste, P. , " Evaluating the impact of the traffic reconfiguration of a complex urban intersection ", [10th International Conference on Modelling, Optimization and Simulation \(MOSIM 2014\)](#), Nancy, France, 5-7 November 2014 (accepted on 18th of July 2014), H5=8.
8. **Mihaita A.S.**, Camargo, M., Lhoste, P. "Optimization of a complex urban intersection using discrete event simulation and evolutionary algorithms", [International Federation of Automatic Control World Congress \(IFAC WC 2014\)](#), Cape Town, Africa, 24-29 August 2014, H5 = 32.
9. Issa, F., Monticolo, D., Gabriel, A. , **Mihaita, A.S.**, "An Intelligent System based on Natural Language Processing to support the brain purge in the creativity process", [IAENG International Conference on Artificial Intelligence and Applications \(ICAIA 2014\)](#), Hong Kong, 12-14 March, 2014.
10. Monticolo, D., **Mihaita A.S.**, "A Multi Agent System to manage ideas during Collaborative Creativity Workshops", [5th International Conference on Future Computer and Communication \(ICFCC 2013\)](#), Phuket, Thailand, 26 May 2013, (H5=12).
11. **Mihaita A. S.**, Mocanu S., "Un nouveau modèle de l'énergie de commande des systèmes stochastiques à commutation", [Septième Conférence Internationale Francophone d'Automatique \(CIFA 2012\)](#) Grenoble, France, 4-7th of July, 2012.
12. **Mihaita A. S.**, Mocanu S., "An Energy Model for the Event-Based Control of a Switched Integrator", [International Federation of Automatic Control World Congress \(IFAC WC 2011\)](#), Milano, September 2011, H5 = 32.

Submitted journals/conferences

1. **Mihaita A. S.**, Dupont L., Cherry O., Camargo M., Cai C., Air quality monitoring using stationary versus mobile sensing units: a case study from Lorraine, France, [IET ITS journal](#), Special edition for the [25th ITS World Congress \(ITSWC 2018\)](#), Copenhagen, Denmark, 17-21st of September 2018 (submitted), (IF=1.19, H5=26).
2. **Mihaita A. S.**, Dupont L., Cherry O., Camargo M., Cai C., Evaluating air quality inside an eco-neighbourhood by combining stationary and smart mobile pollution, [Journal of Cleaner Production \(JCP\)](#), submitted in February 2018, (IF = 6.2, H5 = 116).

Technical Reports

3. Mihaita A.S., Tyler Paul, "An investigation of Basic Safety Message Position Reporting of selected vehicles in CITT", 2016.

PhD Thesis

4. Mihaita, A.S., ["Approche probabiliste pour la commande orientée événements des systèmes stochastiques à commutation"](#), Gipsa-lab, Institut National Polytechnique de Grenoble, September 2012.

Master Thesis

5. Mihaita, A.S., ["Maintien à domicile des personnes âgées : inférence statistique de données des capteurs de suivi d'activités"](#), Gipsa-lab, Institut National Polytechnique de Grenoble, July 2009.