ANDRES LADINO

Research Engineer & Data Scientist

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EXPERIENCE

Research fellow - Postdoctoral

UGE - University Gustave Eiffel[1]

Jan 2020 – Ongoing | Lyon, France

- Lead and developed the task for the impact assessment of platoon functionalities in traffic (ENSEMBLE WP4.5 / EU)
  - Implemented (Python, C++) platooning architectures and interaction with microscopic traffic simulators;
  - Analysis of ADAS protocols to ensure platooning communication at simulation level;
  - Design and creation of scenarios for impact traffic assessment;
  - Create the data collection process and methodologies for impact traffic assessment;
  - Regular meetings with OEMs and consortium partners.
- Core participant in the long program on Autonomous Vehicles [http://bit.ly/IPAM-AVLP]

Research fellow - Postdoctoral

IFSTTAR - French institute of science and technology for transport

Jan 2018 – Dec 2020 (2 Years) | Lyon, France

- Developed methods for control of connected vehicles and platoon strategies in complex traffic networks at LICIT [https://licit-lyon.eu]
- Designed a software package for simulating the interaction of CAVs and traffic simulators (https://symupy.readthedocs.io/en/stable/)
- Attended and Participated at the Autonomous Vehicles workshop at IPAM [http://bit.ly/IPAM-AV]

Research assistant

CNRS / INRIA - National center for scientific research/
French Institute for Research in Computer Science and Automation

August 2014 – October 2017 (3 Years) | Grenoble, France

- SPEEDD project researcher (within Traffic Use Case) at the NeCS [http://bit.ly/necsfr].
- Core participant in the long program on Traffic Flow [http://bit.ly/Speech-IPAM]
- Developed short-term forecasting algorithms for traffic networks. Real-time operation at [http://gtl.inrialpes.fr/status]
  - Designed and tested core base algorithms for short term prediction of travel time;
  - Deployed estimation algorithms for missing data reconstruction in traffic data systems.

Instructor Professor

Pontifical Xaverian University - Universidad Javeriana

January 2011 – August 2014 (3 Years) | Bogota, Colombia

- Courses taught:
  - Dynamic systems;
  - Control theory;
  - Control laboratory.
- Lead the communication committee for the Project ADDE SALEM [http://bit.ly/AddeSalem]

Process Analyst

IBM - International Business Machines

Aug 2007 – Apr 2009 (1 1/2 Years) | Bogota, Colombia

- Analyzed and adapted Business Process Management (BPM) practices in IT Services for Strategic Outsourcing contracts.
- Coordinated and wrote Operational Service Manuals (OSM) jointly with IT management team: Customers:
  - Avianca (Airline)
  - Belcorp (Personal care)
  - Colseguros (Insurance)

MOST PROUD OF

International experience
Having the opportunity to work in an international environment

SKILLS

Traffic Flow Theory | Dynamic simulation | Control theory | Intelligent Transportation Systems | Automatic Control | Statistical Analysis | Statistical Learning | Machine Learning

Python | git | C++ | CMake | Linux | SQL | R | Matlab

LANGUAGES

Spanish ●●●●●
English ●●●●○
French ●●●●○

EDUCATION

Ph.D. in Automatic Control

Université Grenoble Alpes

Sept 2014 – Mar 2018 | Grenoble, FR

Thesis title: Estimation and prediction in large scale traffic networks

M.Eng. in Electronic Engineering

Pontifical Xavierian University

Jul 2009 – Dec 2011 | Bogota, CO -GPA: 4.5/5.0

B.Sc. in Electronic Engineering

Pontifical Xavierian University

Jan 2003 – Sep 2008 | Bogota, CO -GPA: 4.0/5.0

HOBBIES

Piano, outdoor activities (Hiking, Cycling)

[1] Recently created after dissolution of IFSTTAR. Please refer also to activities in my previous position.

PROJECTS

ENSEMBLE

European Union/IFSTTAR

3 years | Lyon, France

Role: Coordinator Work Package 4.5. ENSEMBLE is a European Union funded research project to pave the way for the adoption of multi-brand truck platooning in Europe to improve traffic safety, throughput and fuel economy. [http://bit.ly/EnsemblePlatoonEU]

SPEEDD

European Union/CNRS

3 years | Grenoble, France

Role: Research assistant. SPEEDD is a FP7 EU research project for Development of real-time event recognition and forecasting technology operating on Big Data. [http://bit.ly/SpeeddEU]

ADDE SALEM

European Union/Politecnico di Milano - Pontifical Xaverian University

3 years | Bogota, Colombia

Role: Communications chair. Adde Salem analysed to what extent engineering joint degrees' curricula reflected job market needs in the most developed countries of Latin America. [http://bit.ly/AddeSalem]

CERTIFICATIONS AND ADDITIONAL EDUCATION

Data Scientist/Data Analyst with Python

Data Camp

April 2019 | http://www.datacamp.com

A series of online lectures & projects on how to combine statistical and machine learning techniques with Python programming to analyze and interpret complex data.

- Data Scientist with Python [http://bit.ly/DC_DSwPython]
- Data Analyst with Python [http://bit.ly/DC_DAwPython]
- Machine learning in Python [http://bit.ly/DC_MLwPython]

WORKSHOPS AND RESEARCH EXCHANGES

Core Participant

IPAM UCLA

December 2020/December 2015 | http://www.ipam.ucla.edu/

I attended as core participant to a series of workshops and research exchanges between mathematicians and practitioners in several domain fields:

- 2015: New directions in Mathematical Approaches for Traffic Flow Management [http://bit.ly/MATFMLadino]
- 2020: Mathematical Challenges and Opportunities for Autonomous Vehicles [https://bit.ly/MCOAVLadino]

AWARDS

2nd Prize, Student Thesis Contest

IEEE, Industry Applications Society

October 2012 | Las Vegas, USA

On predictive control of hybrid systems subject to variable time delays This prize recognizes the best emerging academic work on the scope of the Industry Applications Society, in particular advancement of the theory and practice of electrical and electronic engineering.

Honourable Mention

Master Thesis

April 2012 | Bogota, Colombia

On predictive control of hybrid systems subject to variable time delays This thesis analyzes control methods for discrete linear systems with variable time delays using predictive tools while studying their stability properties.

PUBLICATIONS

Journal Articles

- Duret, Aurelien, Meng Wang, and Andres Ladino (2020). "A hierarchical approach for splitting truck platoons near network discontinuities". In: *Transportation Research Part B: Methodological* 132. An optional note, pp. 285–302.
- Ladino, Andres, A. Y. Kibangou, et al. (2017). "A real time forecasting tool for dynamic travel time from clustered time series". In: *Transportation Research Part C: Emerging Technologies* 80, pp. 216–238. ISSN: 0968090X. DOI: 10.1016/j.trc.2017.05.002. URL: http://dx.doi.org/10.1016/j.trc.2017.05.002.

Conference Proceedings

- Ladino, Andres, Aurélien Duret, and Nour-Eddin El Faouzi (2020). "Calibration and impact of control strategies for splitting truck platoons at on-ramps :" in: *TRB 2020 Annual Meeting*. Ed. by Transportation Research Board. Washington, DC, USA.
- Ladino, Andres and Meng Wang (2020). "A dynamic game formulation for cooperative lane change strategies at highway merges". In: *IFAC World Congress 2020*. Ed. by International Federation of Automatic Control. Berlin, Germany.
- Duret, Aurelien, Meng Wang, and Andres Ladino (2019). "A Hierarchical Approach For Splitting Truck Platoons Near Network Discontinuities". In: *23rd International Symposium on Transportation and Traffic Theory, ISTTT*, pp. 627–646.
- Duret, A, A Ladino, and M Wang (2018). "Hierarchical multi-injection strategy and platoon manoeuvres at network junctions". In: *2nd Symposium on Management of Future Motorway and Urban Traffic Systems*. Ed. by EU. Vol. 2. Ispra, pp. 11–13.
- Ladino, Andres, Carlos Canudas-de-Wit, et al. (2018). "Density and flow reconstruction in urban traffic networks using heterogeneous data sources". In: *2018 European Control Conference (ECC)*. ed. by IEEE. Limasol, Chyprus: IEEE, pp. 1679–1684. ISBN: 978-3-9524-2698-2. DOI: 10.23919/ECC.2018.8550267.
- Ladino, Andres, Alain Kibangou, et al. (2017). "Travel time forecasting from clustered time series via optimal fusion strategy". In: *2016 European Control Conference, ECC 2016*, pp. 2234–2239. ISBN: 9781509025916. DOI: 10.1109/ECC.2016.7810623. URL: https://hal.archives-ouvertes.fr/hal-01296525/.
- Ladino, Andres and Diego Patino (2013). "On the stability of predictive controllers for linear systems with variable time delays". In: *2013 American Control Conference (Acc)*, pp. 3254–3259. ISBN: 0743-1619; 978-1-4799-0178-4. DOI: 10.1109/ACC.2013.6580333.