

# CURRICULUM VITAE

## 1 Personal Information

**Candidate** André Luiz Barbosa Nunes da Cunha

**Online Profiles** [Lattes](#)<sup>1</sup>, [ORCID](#)<sup>2</sup>, [Google Scholar](#)<sup>3</sup>, [LinkTree](#)<sup>4</sup>

## 2 Academic Background

1. **Bachelor's Degree in Civil Engineering** from the Federal University of Mato Grosso do Sul (UFMS), Campo Grande-MS, Brazil – 2003.
2. **Master's Degree in Transportation Engineering**, concentration area “Transportation Systems Planning and Operation”, from the University of São Paulo, São Carlos School of Engineering – 2007:
  - > - *Title*: Evaluation of performance measurement impact on truck passenger car equivalents
  - > - *Advisor*: Prof. José Reynaldo Anselmo Setti
  - > - *Funding*: National Council for Scientific and Technological Development (CNPq)
  - > - *DOI*: [10.11606/D.18.2007.tde-27112007-094400](#).
3. **PhD in Sciences**, concentration area “Transportation Systems Planning and Operation”, from the University of São Paulo, São Carlos School of Engineering – 2013:
  - > - *Title*: Automatic system for obtaining vehicular traffic parameters from video images using OpenCV
  - > - *Advisor*: Prof. José Reynaldo Anselmo Setti
  - > - *Funding*: National Council for Scientific and Technological Development (CNPq)
  - > - *DOI*: [10.11606/T.18.2013.tde-19112013-165611](#)

## 3 Awards and Honors

1. **ABCR Innovation Salon Award**, 9th Brazilian Congress on Highways and Concessions (CBR&C), 5th Innovation Salon of the Brazilian Association of Highway Concessionaires (ABCR) – 2015.
2. **Excellence Certificate**, best professor of the Department of Transportation Engineering (USP-EESC-STT), SACivil - Academic Secretariat of Civil Engineering – 2016.
3. **Excellence Certificate**, best professor of the Department of Transportation Engineering (USP-EESC-STT), SACivil - Academic Secretariat of Civil Engineering – 2017.
4. **ANPET Scientific Production Award**, National Agency for Transportation Research and Education (ANPET) – 2023.

## 4 Additional Training

1. *Machine Learning Summer School* (MLSS). Short course (Workload: 30h), Sydney, New South Wales, Australia – February 16-25, 2015.
2. *Image Processing using Python and NumPy*. University extension (Workload: 20h), State University of Campinas, UNICAMP, Campinas, Brazil – March 12 to April 11, 2015.
3. *PHP Course*. Online short course (Workload: 40h), CursoemVideo.com, Brazil – 05/03/2015.
4. *From Virtual Reality to Digital Fabrication: Challenges and Opportunities in the Classroom*. USP Faculty Development Activities Cycle (Workload: 2h), Ribeirão Preto, SP, Brazil – 09/10/2015.
5. *Aesthetics and Dynamics for Developing Electronic Lessons*. USP Faculty Development Activities Cycle (Workload: 2h), Ribeirão Preto, SP, Brazil – 09/24/2015.
6. *Creating Tutorial Videos in a Practical Way*. USP Faculty Development Activities Cycle (Workload: 2h), Ribeirão Preto, SP, Brazil – 10/15/2015.
7. *DAT203x Data Science & Machine Learning Essential*. Online short course (Workload: 20h), Microsoft Corporation, Washington, D.C., United States – 11/01/2015.

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<sup>1</sup><http://lattes.cnpq.br/7996696632908127>

<sup>2</sup><https://orcid.org/0000-0002-0520-0621>

<sup>3</sup><https://scholar.google.com.br/citations?user=HI0CQJMAAAAJ&hl=en>

<sup>4</sup>[https://linktr.ee/prof\\_alcunha](https://linktr.ee/prof_alcunha)

8. *Ebook Development for Digital, Portable and Flexible Teaching*. USP Faculty Development Activities Cycle (Workload: 2h), Ribeirão Preto, SP, Brazil – 11/12/2015.
9. *EX101x Data Analysis: Take it to the MAX()*. Online short course (Workload: 40h), Delft University of Technology, TU DELFT, Delft, Netherlands – 12/02/2015.
10. *Using Databases with Python*. Online short course (Workload: 12h), University of Michigan, UMICH, Ann Arbor, United States – 2015.
11. *Data Structures - Python*. Online short course (Workload: 12h), University of Michigan, UMICH, Ann Arbor, United States – 2015.
12. *Getting Started with Python*. Online short course (Workload: 20h), University of Michigan, UMICH, Ann Arbor, United States – 2015.
13. *Using Python to Access Web Data*. Online short course (Workload: 20h), University of Michigan, UMICH, Ann Arbor, United States – 2015.
14. *DS101X: Statistical Thinking for Data Science and Analytics*. Online short course (Workload: 12h), Columbia University, New York, United States – 01/22/2016.
15. *Arduino Mini-Course*. University extension (Workload: 5h), São Carlos School of Engineering, USP-EESC, Brazil – 10/01/2016.
16. *Using the Turnitin Platform*. Short course (Workload: 3h), São Carlos School of Engineering, USP-EESC, Brazil – 05/09/2017.
17. *II Workshop on Data Science*. Short course (Workload: 4h), University of São Paulo, USP, São Paulo, Brazil – 05/11/2017.
18. *Advanced School on Big Data Analysis*. Short courses (Workload: 24h), Institute of Mathematical and Computer Sciences, ICMC, Brazil – July 3-7, 2017:
  - “*Deep Learning*” (Workload: 8h)
  - “*Data Visualization*” (Workload: 8h)
  - “*Machine Learning*” (Workload: 8h).
19. *Understanding Deep Learning*. Short course (Workload: 8h), Neural Mind Technologies (NMT), Campinas, SP, Brazil – 09/01/2017.
20. *How to Teach Today: Blended Models, Active Methodologies and Digital Technologies*. USP Faculty Development Activities Cycle (Workload: 2h), Ribeirão Preto, SP, Brazil – 09/15/2017.
21. *Python 3 Course - Fundamentals*. Online short course (Workload: 40h), Curso em Vídeo, CEV, Brazil – 10/17/2017.
22. *Disciplinary, Interdisciplinary and Project-Based Teaching*. Seminar (Workload: 1.5h), Institute of Chemistry of São Carlos (USP-IQSC), São Carlos, SP, Brazil – 06/12/2019.
23. *São Paulo School of Advanced Science on Learning from Data (SPSAS)*. Short course (Workload: 80h), University of São Paulo (USP), São Paulo, SP, Brazil – July 29 to August 9, 2019.
24. *Active Methodologies in Higher Education Innovation*. USP Faculty Development and Training (Workload: 4h), Online lectures, Brazil – 10/03/2019.
25. *Design Thinking, Simulation Labs and Gamification as Teaching Strategies - New Solutions for Old Problems*. USP Faculty Development and Training (Workload: 4h), Online lectures, Brazil – 10/07/2019.
26. *Higher Education: Sharing Knowledge Among USP Faculty*. USP Research Pro-Rector (Workload: 15h), Online lectures, Brazil – March 3-12, 2021.
27. *Exploration and Joint Processing of Public Data for Vehicular Traffic Research and Practice*. Short course (Workload: 1.5h), ANPET Congress (National Association for Transportation Research and Education), Florianópolis, SC, Brazil – 11/05/2024.
28. *A Practical Course on Urban Accessibility in R*. Short course (Workload: 2h), ANPET Congress (National Association for Transportation Research and Education), Florianópolis, SC, Brazil – 11/06/2024.
29. *Microsimulation of Bike Lanes in PTV Vissim*. Short course (Workload: 2h), ANPET Congress (National Association for Transportation Research and Education), Florianópolis, SC, Brazil – 11/06/2024.

## 5 Professional Experience

1. Civil Engineering Intern at Desenvolvimento de Projetos de Engenharia Ltda (DPE), Campo Grande, MS, Brazil. – December 2, 2002 to February 28, 2003.  
*Activities performed:* AutoCAD drawings of highway geometric designs and horizontal/vertical signage projects.
2. Civil Engineering Intern at Comércio, Construção e Engenharia Ltda (COCENG), Campo Grande, MS, Brazil. – March 1, 2003 to February 2, 2004.  
*Activities performed:* AutoCAD drawings of residential projects, construction budgeting, and construction supervision.
3. Teaching Internship, Teaching Improvement Program (PAE) scholarship holder, University of São Paulo, São Carlos School of Engineering, São Carlos, SP, Brazil. (Workload: 6h/week) – February to June 2006.  
*Activities performed:* tutoring undergraduate students in the course STT0408 – Introduction to Transportation Engineering, Department of Transportation Engineering (STT).
4. Text Editing Service for TRANSPORTES Journal, Rio de Janeiro, RJ, Brazil. – June 2006 to November 2011.  
*Activities performed:* formatting articles according to journal standards and designing volume covers.
5. Teaching Internship, Teaching Improvement Program (PAE) scholarship holder, University of São Paulo, São Carlos School of Engineering, São Carlos, SP, Brazil. (Workload: 6h/week) – February to June 2009.  
*Activities performed:* tutoring undergraduate students in the course STT0408 – Introduction to Transportation Engineering, Department of Transportation Engineering (STT).
6. Substitute Professor at São Paulo State University (UNESP) “Júlio de Mesquita Filho”, Faculty of Engineering of Bauru (FEB), Bauru, SP, Brazil. (Workload: 12h/week). – March 2, 2010 to December 20, 2010.  
*Activities performed:* two courses taught in the Civil Engineering undergraduate program:
  - “Transport Technique and Economics” in the 1st semester; and
  - “Traffic Engineering” in the 2nd semester.
7. Civil Engineering Freelance Service at the Institute of Mathematical and Computer Sciences (ICMC), USP. São Carlos, SP, Brazil. – March 1, 2012 to April 1, 2012:  
*Activities performed:* infrastructure digitization in AutoCAD, building maintenance, and management of ongoing construction projects at ICMC.
8. External Consultant in Transportation Engineering at Técnicos em Transportes Ltda (TECTTRAN), Belo Horizonte, MG, Brazil. – April 2, 2012 to December 1, 2012:  
*Activities performed:* creation of a database for the EPELT (Transport Logistics Planning Office) of the Minas Gerais State Secretariat.
9. Laboratory Specialist (Superior 1A) at the Department of Transportation Engineering (STT), São Carlos School of Engineering (USP-EESC), São Carlos, SP, Brazil. Public tender under Announcement EESC/USP 11/2012 (Workload: 40h/week). – February 14, 2013 to June 30, 2014:  
*Activities performed:*
  - Develop scientific research in projects led by faculty, with didactic-scientific and extension focus;
  - Plan, develop, implement, document and maintain databases for research, extension or teaching projects;
  - Assist in advising undergraduate research and graduate students;
  - Support the organization of laboratory activities;
  - Provide user support for software and department systems/network.
10. Professor (MS-3.1) at the Department of Transportation Engineering (STT), São Carlos School of Engineering (USP-EESC), São Carlos, SP, Brazil. Public tender under Announcement ATAc-56/2013 (Workload: Full Dedication to Teaching and Research Regime - RDIDP) – since July 1, 2014 to present.
11. Visiting Professor at *TUM-USP Workshop on Sustainable Mobility* held at the Institute of Automotive Technology (FTM), Technical University of Munich (TUM), Munich, Bavaria, Germany. The workshop involved German and Brazilian researchers selected by BAYLAT/FAPESP Call. – November 28 to December 2, 2016:

*Activities performed:* presentation of ongoing projects, discussions on international mobility, presentation of collaborative projects.

12. Visiting Professor at University of Minho, Guimarães, Portugal. This international mission was part of project approved CAPES-FCT 39/2014 with duration between 2016 and 2018. – July 17-28, 2017:  
*Activities performed:* during the mission, visits were made to institutions University of Minho and University of Porto to discuss collaborative projects on pedestrian behavior characterization.
13. Visiting Professor at *TUM-USP Workshop on Sustainable Mobility* held at USP Polytechnic School, São Paulo, SP, Brazil. The workshop involved German and Brazilian researchers selected by BAY-LAT/FAPESP Call. – September 18-21, 2017:  
*Activities performed:* presentation of collaborative projects between Brazil and Germany aimed at improving urban mobility.
14. Professor in the Transport Infrastructure Training Course, under agreement between USP and the Ministry of Public Works and Communications of Paraguay (MOPC). (Workload: 32h) – March 1 to July 1, 2018:  
*Activities performed:* taught the course “*Intelligent Road and Urban Transportation Systems*”.
15. Visiting Professor at University of Zagreb, Zagreb, Croatia. ERASMUS+ Program: Higher Education Mobility Agreement (UNIZG / USP-EESC). Faculty mobility to share teaching and research experiences in Intelligent Transportation Systems (ITS). (Workload: 13h) – June 4-14, 2018:  
*Activities performed:* taught courses for undergraduate and graduate levels at the Faculty of Transport and Traffic Sciences, UNIZG.
16. Moderator and speaker at the event “*Arena New Mobility - Auto Show 2018*” held in São Paulo, SP, Brazil. (Workload: 4.5h) – November 15-16, 2018:  
*Activities performed:*
  - Moderator in the sessions “The future of mobility: connected, multimodal and shared”<sup>5</sup> and “The future of transportation has arrived: Get ready!”<sup>6</sup>;
  - Speaker in the session “Mobility solutions”<sup>7</sup>.
17. Host Professor at USP-EESC for the visit of Prof. Eduard Ivanjko, University of Zagreb, Zagreb, Croatia. ERASMUS+ Program: Higher Education Mobility Agreement (UNIZG / USP-EESC). Faculty mobility to share teaching and research experiences in Intelligent Transportation Systems (ITS). (Workload: 8h) – April 2-8, 2019:  
*Activities performed:* organize and accompany the visiting professor Eduard Ivanjko during lectures given at USP-EESC and USP-Polytechnic, in São Paulo.
18. Professor in the Transport Infrastructure Training Course, under agreement between USP and the Ministry of Public Works and Communications of Paraguay (MOPC). (Workload: 15h) – August 1 to November 30, 2018:  
*Activities performed:* course “*Transport Technology II*” taught to engineers from Paraguay.
19. Technical Advisory for Autopista Litoral Sul (ALS) on BR-376/PR highway<sup>8</sup>. – December 2019:  
*Activities performed:*
  - Supervision of tests in the truck escape area at km 667 of BR-376, between Curitiba/PR and Joinville/SC;
  - Technical report on the escape ramp operation.
20. Visiting Professor at University of Melbourne (UniMelb), Melbourne School of Engineering (MSE), Department of Infrastructure Engineering. CAPES Fellow of CAPES-Print Program – 88887.371506/2019-00, Print Program - Junior Visiting Professor – January to December 2020:  
*Activities performed:*
  - Development of the project “Graph-Based Approach for Spatio-Temporal Traffic Network Analysis”;
  - Participation in projects and partnerships with UniMelb faculty – Prof. Patricia Sauri Lavieri, Prof. Majid Sarvi and Prof. Stephan Winter;

<sup>5</sup><https://youtu.be/8UwQ3e9oG-I?si=QL6TUsqkIAdL5Vz->

<sup>6</sup>[https://youtu.be/g\\_oo\\_GBBkdU?si=JuKAt8V\\_t\\_R6tobb](https://youtu.be/g_oo_GBBkdU?si=JuKAt8V_t_R6tobb)

<sup>7</sup><https://youtu.be/FgriabRRdbg?si=NbKxKL7oPvgolKY5&t=1845>

<sup>8</sup>coverage on USP São Carlos Portal (<https://saocarlos.usp.br/professores-da-eesc-supervisionam-ensaios-tecnicos-em-nova-area-de-escape-para-caminhoes/>) and interview on Rede Globo’s Jornal Hoje program (<https://globoplay.globo.com/v/8165879/>).

- Supervision of the final Civil Engineering master's project "Measuring the temporal and spatial impacts of short-terms events on pedestrian flows" – by the student group Jessica Tong, Hans Gao and Marcus Rzanovski;
  - Co-supervision of the PhD project "Toward a Data-driven Framework to Analyse Temporal and Spatial Distributions of Crashes" – Gabriel Jurado Martins de Oliveira.
21. Visiting Professor at University of Zagreb (UNIZG), Zagreb, Croatia. ERASMUS+ Program: Virtual Teaching Mobility (online) - Mobility Agreement. (Workload: 8h) – April 11-15, 2022:  
*Activities performed:* Online lectures for undergraduate and graduate courses at the Faculty of Transport and Traffic Sciences, UNIZG.
22. Host Professor for Prof. Edouard Ivanjko from University of Zagreb (UNIZG), Zagreb, Croatia. ERASMUS+ Program: Virtual Teaching Mobility (online) - Mobility Agreement – April 25-29, 2022:  
*Activities performed:* organize and accompany the online lectures by Prof. Edouard Ivanjko for undergraduate and graduate courses at the São Carlos School of Engineering (EESC-USP).
23. Technical Advisory for Canhedo Beppu Engenheiros Associados Ltda on BR-116/RJ highway, Via Dutra, Serra das Araras. – June to December 2019:  
*Activities performed:*
- Analysis of the location of escape areas for trucks without brakes in the project of the new descending lane of Via Dutra;
  - Scenario simulation;
  - Report on the escape ramp operation for the observed truck fleet.

## 6 Activities at University of São Paulo (USP)

### 6.1 Teaching Activities

#### 6.1.1 Undergraduate

1. Courses taught in the 2nd semester of 2014 (1:40 h/week):  
 STT0618 - Air Transport.
2. Courses taught in the 1st semester of 2015 (7:18 h/week):  
 STT0403 - Airports, Ports and Waterways;  
 STT0408 - Fundamentals of Transportation Engineering.
3. Courses taught in the 2nd semester of 2015 (1:57 h/week):  
 STT0602 - Traffic Engineering.
4. Courses taught in the 1st semester of 2016 (9:26 h/week):  
 1800093 - Final Undergraduate Project I; STT0403 - Airports, Ports and Waterways; STT0408 - Fundamentals of Transportation Engineering.
5. Courses taught in the 2nd semester of 2016 (5:57 h/week):  
 STT0412 - Computational Tools Applied to Civil Engineering;  
 STT0628 - Traffic Engineering and Road Traffic Simulation.
6. Courses taught in the 1st semester of 2017 (8:30 h/week):  
 STT0403 - Airports, Ports and Waterways;  
 STT0408 - Fundamentals of Transportation Engineering.
7. Courses taught in the 2nd semester of 2017 (2:19 h/week):  
 STT0412 - Computational Tools Applied to Civil Engineering.
8. Courses taught in the 1st semester of 2018 (5:19 h/week):  
 STT0408 - Fundamentals of Transportation Engineering.
9. Courses taught in the 2nd semester of 2018 (6:02 h/week):  
 STT0412 - Computational Tools Applied to Civil Engineering;  
 STT0628 - Traffic Engineering and Road Traffic Simulation.

10. Courses taught in the 1st semester of 2019 (11:36 h/week):  
1800078 - Supervised Internship in Civil Engineering;  
1800093 - Final Undergraduate Project I;  
STT0403 - Airports, Ports and Waterways; STT0408 - Fundamentals of Transportation Engineering.
11. Courses taught in the 2nd semester of 2019 (7:36 h/week):  
1800078 - Supervised Internship in Civil Engineering; STT0412 - Computational Tools Applied to Civil Engineering;  
STT0628 - Traffic Engineering and Road Traffic Simulation.
12. Courses taught in the 1st semester of 2021 (7:38 h/week):  
1800078 - Supervised Internship in Civil Engineering;  
STT0403 - Airports, Ports and Waterways;  
STT0408 - Fundamentals of Transportation Engineering.
13. Courses taught in the 2nd semester of 2021 (9:04 h/week):  
1800078 - Supervised Internship in Civil Engineering; STT0628 - Traffic Engineering and Road Traffic Simulation;  
STT0630 - Computational Tools Applied to Civil Engineering.
14. Courses taught in the 1st semester of 2022 (9:01 h/week):  
1800078 - Supervised Internship in Civil Engineering;  
STT0403 - Airports, Ports and Waterways;  
STT0408 - Fundamentals of Transportation Engineering.
15. Courses taught in the 2nd semester of 2022 (6:06 h/week):  
STT0628 - Traffic Engineering and Road Traffic Simulation;  
STT0630 - Computational Tools Applied to Civil Engineering.
16. Courses taught in the 1st semester of 2023 (8:25 h/week):  
1800078 - Supervised Internship in Civil Engineering;  
STT0403 - Airports, Ports and Waterways;  
STT0408 - Fundamentals of Transportation Engineering.
17. Courses taught in the 2nd semester of 2023 (9:15 h/week):  
1800094 - Final Undergraduate Project II;  
1800122 - Supervised Internship;  
STT0628 - Traffic Engineering and Road Traffic Simulation;  
STT0630 - Computational Tools Applied to Civil Engineering.
18. Courses taught in the 1st semester of 2024 (12:52 h/week):  
1800094 - Final Undergraduate Project II;  
STT0403 - Airports, Ports and Waterways;  
STT0408 - Fundamentals of Transportation Engineering.
19. Courses taught in the 2nd semester of 2024 (7:36 h/week):  
1800122 - Supervised Internship;  
STT0628 - Traffic Engineering and Road Traffic Simulation;  
STT0630 - Computational Tools Applied to Civil Engineering.
20. Courses taught in the 1st semester of 2025 (6:36 h/week):  
STT0408 - Fundamentals of Transportation Engineering;  
STT0610 - Logistics and Transportation.

### 6.1.2 Graduate

1. Courses taught in 2015 (6:00 h/week):

- STT5874 - Advanced Topics in Traffic Engineering;  
 STT5898 - Applied Statistics for Transportation Engineering;  
 STT5900 - Multivariate Data Analysis Applied to Transportation Engineering.
2. Courses taught in 2016 (7:20 h/week):
- STT5859 - Transport Technology;  
 STT5874 - Advanced Topics in Traffic Engineering;  
 STT5898 - Applied Statistics for Transportation Engineering;  
 STT5900 - Multivariate Data Analysis Applied to Transportation Engineering.
3. Courses taught in 2017 (9:40 h/week):
- STT5859 - Transport Technology;  
 STT5874 - Advanced Topics in Traffic Engineering;  
 STT5898 - Applied Statistics for Transportation Engineering;  
 STT5900 - Multivariate Data Analysis Applied to Transportation Engineering;  
 STT5905 - Bibliographic Research for Transportation Systems Planning and Operation;  
 STT5909 - Data Analysis Laboratory with Open-Source Software R.
4. Courses taught in 2018 (8:00 h/week):
- STT5859 - Transport Technology;  
 STT5874 - Advanced Topics in Traffic Engineering;  
 STT5898 - Applied Statistics for Transportation Engineering;  
 STT5900 - Multivariate Data Analysis Applied to Transportation Engineering;  
 STT5905 - Bibliographic Research for Transportation Systems Planning and Operation.
5. Courses taught in 2019 (8:00 h/week):
- STT5859 - Transport Technology;  
 STT5874 - Advanced Topics in Traffic Engineering;  
 STT5898 - Applied Statistics for Transportation Engineering;  
 STT5900 - Multivariate Data Analysis Applied to Transportation Engineering;  
 STT5905 - Bibliographic Research for Transportation Systems Planning and Operation.
6. Courses taught in 2021 (7:24 h/week):
- STT5859 - Transport Technology;  
 STT5874 - Advanced Topics in Traffic Engineering;  
 STT5898 - Applied Statistics for Transportation Engineering;  
 STT5900 - Multivariate Data Analysis Applied to Transportation Engineering;  
 STT5905 - Bibliographic Research for Transportation Systems Planning and Operation.
7. Courses taught in 2022 (7:00 h/week): > STT5859 - Transport Technology;  
 > STT5874 - Advanced Topics in Traffic Engineering;  
 > STT5898 - Applied Statistics for Transportation Engineering;  
 > STT5900 - Multivariate Data Analysis Applied to Transportation Engineering.
8. Courses taught in 2023 (7:24 h/week):
- STT5859 - Transport Technology;  
 STT5874 - Advanced Topics in Traffic Engineering;  
 STT5898 - Applied Statistics for Transportation Engineering;  
 STT5900 - Multivariate Data Analysis Applied to Transportation Engineering;  
 STT5905 - Bibliographic Research for Transportation Systems Planning and Operation.
9. Courses taught in 2024 (7:24 h/week):
- STT5859 - Transport Technology;  
 STT5874 - Advanced Topics in Traffic Engineering;  
 STT5898 - Applied Statistics for Transportation Engineering;  
 STT5900 - Multivariate Data Analysis Applied to Transportation Engineering;  
 STT5905 - Bibliographic Research for Transportation Systems Planning and Operation.
10. Courses taught in 2025 (3:00 h/week):
- STT5859 - Transport Technology;  
 STT5898 - Applied Statistics for Transportation Engineering.

## 6.2 Scientific Production

### 6.2.1 Full Papers Published in Journals

1. **CUNHA, A.L.**; SETTI, J.R. Truck equivalence factors for divided, multilane highways in Brazil. *Procedia: Social and Behavioral Sciences*. v.16, p.248-258, 2011.  
<DOI: [10.1016/j.sbspro.2011.04.447](https://doi.org/10.1016/j.sbspro.2011.04.447)>
2. LAROCCA, A.P.C.; ARAUJO NETO, J.O.; BARBOSA, A.C.B.; TRABANCO, J.L.A.; **CUNHA, A.L.B.N.** Dynamic Monitoring vertical Deflection of Small Concrete Bridge Using Conventional Sensors And 100 Hz GPS Receivers - Preliminary Results. *IOSRJEN Journal of Engineering*. v.04, p.09-20, 2014.  
<DOI: [10.9790/3021-04920920](https://doi.org/10.9790/3021-04920920)>
3. LAROCCA, A.P.C.; ARAÚJO NETO, J.O.; TRABANCO, J.L.A.; BARBOSA, A.C.B.; **CUNHA, A.L.B.N.**; SCHAAL, R.E. Use of 100 Hz GPS receivers in the detection of millimeter vertical deflections of small concrete bridges. *Boletim de Ciências Geodésicas*. v.21, p.290-307, 2015.  
<DOI: [10.1590/S1982-21702015000200017](https://doi.org/10.1590/S1982-21702015000200017)>
4. ANDRADE, G.R.; PITOMBO, C.; **CUNHA, A.L.N.**; SETTI, J.R. A Model for Estimating Free-Flow Speed on Brazilian Expressways. *Transportation Research Procedia*. v.15, p.378-388, 2016.  
<DOI: [10.1016/j.trpro.2016.06.032](https://doi.org/10.1016/j.trpro.2016.06.032)>
5. SOUZA, N.C.; PITOMBO, C.; **CUNHA, A.L.**; LAROCCA, A.P.C.; DE ALMEIDA FILHO, G.S. Model for classification of linear erosion processes along railways through decision tree algorithm and geotechnologies. *Boletim de Ciências Geodésicas*. v.23, p.72-86, 2017.  
<DOI: [10.1590/S1982-21702017000100005](https://doi.org/10.1590/S1982-21702017000100005)>
6. LINDNER, A.; PITOMBO, C.S.; **CUNHA, A.L.** Estimating motorized travel mode choice using classifiers: An application for high-dimensional multicollinear data. *Travel Behaviour and Society*. v.6, p.100-109, 2017.  
<DOI: [10.1016/j.tbs.2016.08.003](https://doi.org/10.1016/j.tbs.2016.08.003)>
7. DE OLIVEIRA, J.V.M.; LAROCCA, A.P.C.; DE ARAÚJO NETO, J.O.; CUNHA, A.L.; DOS SANTOS, M.C.; SCHAAL, R.E. Vibration monitoring of a small concrete bridge using wavelet transforms on GPS data. *Journal Of Civil Structural Health Monitoring*. v.9, p.397-409, 2019.  
<DOI: [10.1007/s13349-019-00341-y](https://doi.org/10.1007/s13349-019-00341-y)>
8. OLIVEIRA, J.V.M.; LAROCCA, A.P.C.; ARAUJO NETO, J.O.; **CUNHA, A.L.**; SANTOS, M.C.; SCHAAL, R.E. Rigid Bridges Health Dynamic Monitoring Using 100 Hz GPS Single-Frequency and Accelerometers. *Positioning*. v.10, p.17-33, 2019.  
<DOI: [10.4236/pos.2019.102002](https://doi.org/10.4236/pos.2019.102002)>
9. PIANUCCI, M.N.; PITOMBO, C.S.; **CUNHA, A.L.**; LIMA SEGANTINE, P.C. Forecasting household travel demand through a sequential method based on synthetic population and artificial neural networks. *Transportes (Rio de Janeiro)*. v.27, p.1-23, 2019.  
<DOI: [10.14295/transportes.v27i4.1409](https://doi.org/10.14295/transportes.v27i4.1409)>
10. MARTINS, D.O.; OLIVEIRA, G.J.M.; MORAES, F.R.; SILVA, I.; **CUNHA, A.L.** Geomatics data management system. *Revista Brasileira de Geomática*. v.8, p.056-069, 2020.  
<DOI: [10.3895/rbgeo.v8n1.10141](https://doi.org/10.3895/rbgeo.v8n1.10141)>
11. MORELLI, A.B.; **CUNHA, A.L.** Measuring urban road network vulnerability to extreme events: An application for urban floods. *Transportation Research Part D – Transport and Environment*. v.93, p.102770, 2021.  
<DOI: [10.1016/j.trd.2021.102770](https://doi.org/10.1016/j.trd.2021.102770)>
12. SILVA, F.A.; BESSA JÚNIOR, J.E.; COSTA, A.L.; **CUNHA, A.L.**; ANDALÍCIO, A.F.; DA COSTA VELHO, D.M.; NAZARETH, V.S. Evaluation of the effect of climbing lanes on segments of two-lane highways. *Transportes (Rio de Janeiro)*. v.29, p.1-16, 2021.  
<DOI: [10.14295/transportes.v29i1.2359](https://doi.org/10.14295/transportes.v29i1.2359)>
13. MORELLI, A. B.; **CUNHA, A.L.** Assessing vulnerabilities in transport networks: a graph-theoretic approach. *Transportes (Rio de Janeiro)*. v.29, p.161-172, 2021.  
<DOI: [10.14295/transportes.v29i1.2250](https://doi.org/10.14295/transportes.v29i1.2250)>
14. SILVA, F.A.; BESSA JUNIOR, J.E.; COSTA, A.L.; **CUNHA, A.L.**; VELHO, D.M.C. Analysis of no-passing zones to assess the level of service on two-lane rural highways in Brazil. *Case Studies on*



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15. SILVA, F.A.E.; BESSA JUNIOR, J.E.; COSTA, A.L.; **CUNHA, A.L.**; VELHO, D.M.C.; ANDALICIO, A. Exploratory analysis of the VISSIM simulation model for two-lane highways. Engenharia Civil UM (Braga), n.63, p.6-17, 2023.  
<DOI: [10.21814/ecum.4493](https://doi.org/10.21814/ecum.4493)>
16. FLEURY, M.P.; KAMAKURA, G.K.; PITOMBO, C.S.; **CUNHA, A.L.B.N.**; LINS DA SILVA, J. Prediction of non-woven geotextiles' reduction factors for damage caused by the drop of backfill materials. Geotextiles and Geomembranes. v.1, p.1 - 11, 2023.  
<DOI: [10.1016/j.geotexmem.2023.05.004](https://doi.org/10.1016/j.geotexmem.2023.05.004)>
17. DE OLIVEIRA, G.J.M.; LAVIERI, P.S.; **CUNHA, A.L.** Integrating a non-gridded space representation into a graph neural networks model for citywide short-term crash risk prediction. Urban Informatics. v.2, p.7, 2023.  
<DOI: [10.1007/s44212-023-00032-6](https://doi.org/10.1007/s44212-023-00032-6)>
18. FLEURY, M.P.; KAMAKURA, G.K.; PITOMBO, C.S.; **CUNHA, A.L.B.N.**; FERREIRA, F.B.; LINS DA SILVA, J. Assessing and Predicting Geogrid Reduction Factors after Damage Induced by Dropping Recycled Aggregates. Sustainability. v.15, p.9942, 2023.  
<DOI: [10.3390/su15139942](https://doi.org/10.3390/su15139942)>

## 6.2.2 Chapters

1. **CUNHA, A.L.**; BESSA, J.E.; SETTI, J.R. Genetic Algorithm for the Calibration of Vehicle Performance Models of Microscopic Traffic Simulators In: Lecture Notes in Computer Science, ed.1. : Springer Berlin Heidelberg, p. 3 - 14, 2009.  
<DOI: [10.1007/978-3-642-04686-5\\_1](https://doi.org/10.1007/978-3-642-04686-5_1)>

## 6.2.3 Conference Proceedings (Full Papers)

1. **CUNHA, A.L.B.N.**; SETTI, J.R. Calibration of the CORSIM truck performance model using a genetic algorithm. In: XX ANPET – Research and Teaching in Transport Congress, 2006, Brasília. Proceedings of the XX ANPET, v.I, p.88–99 – 2006.
2. BESSA JUNIOR, J.E.; LIMA, F.A.A.; **CUNHA, A.L.B.N.**; SETTI, J.R. Calibration of the Integration simulator's performance model using a genetic algorithm. In: XXII ANPET – Research and Teaching in Transport Congress, 2008, Fortaleza, CE. Proceedings of the XXII ANPET – 2008.
3. **CUNHA, A.L.B.N.**; MODOTTI, M.M.; SETTI, J.R. Truck classification through cluster analysis. In: XXII ANPET – Research and Teaching in Transport Congress, 2008, Fortaleza, CE. Proceedings of the XXII ANPET – 2008.
4. **CUNHA, A.L.B.N.**; SETTI, J.R. Equivalence factors for trucks on dual carriageway highways. In: 6th Brazilian Congress of Highways and Concessions – CBR&C, 2009, Florianópolis, SC. Proceedings of the 6th CBR&C – 2009.
5. BESSA JUNIOR, J.E.; **CUNHA, A.L.B.N.**; SETTI, J.R. Comparison between CORSIM and TWOPAS simulators for modeling two-lane highways. In: XXV ANPET – Research and Teaching in Transport Congress, 2011, Rio de Janeiro, RJ. National Overview of Transport Research 2011, p.2140–2151 – 2011.
6. **CUNHA, A.L.B.N.**; SETTI, J.R.; GONZAGA, A. Comparison of background generation models in vehicular traffic video processing. In: XXVII ANPET – Research and Teaching in Transport Congress, 2013, Belém. Proceedings of the XXVII ANPET – 2013.
7. ROCHA, S.S.; PIANUCCI, M.N.; PITOMBO, C.S.; **CUNHA, A.L.B.N.** Use of Neural Networks for trip production forecasting: an aggregate analysis. In: XXIX ANPET – Research and Teaching in Transport Congress, 2015, Ouro Preto, MG. Proceedings of the XXIX ANPET – 2015.
8. ANDRADE, G.R.; PITOMBO, C.S.; **CUNHA, A.L.B.N.**; SETTI, J.R.; FERRAZ, A.C.P. Forecasting free-flow speed on São Paulo expressways and highways. In: 9th Brazilian Congress of Highways and Concessions – CBR&C, 2015, Brasília. Proceedings of the 9th CBR&C – 2015.

9. RIBEIRO, E.R.; **CUNHA, A.L.** Exploratory analysis of a method for defining a typical day using Wavelet transform and cluster analysis. In: XXX ANPET – Research and Teaching in Transport Congress, 2016, Rio de Janeiro, RJ. Proceedings of the XXX ANPET – 2016.
10. THEBIT, M.M.; **CUNHA, A.L.**; PITOMBO, C.S. Relationship between bus mode supply and modal choice for airport access: a data mining approach. In: PLURIS – Luso-Brazilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2016, Maceió. Proceedings of the 7th PLURIS – 2016.
11. FERREIRA, F.A.; PITOMBO, C.S.; **CUNHA, A.L.** Forecasting mode choice on a university campus using binomial logistic regression. In: PLURIS – Luso-Brazilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2016, Maceió. Proceedings of the 7th PLURIS – 2016.
12. ASSIS, R.K.M.; DURAN, J.B.C.; **CUNHA, A.L.**; PITOMBO, C.S.; FERNANDES JUNIOR, J.L. Application of Artificial Neural Networks for predictive modeling of pavement functional classification. In: PLURIS – Luso-Brazilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2016, Maceió. Proceedings of the 7th PLURIS – 2016.
13. OLIVEIRA, G.J.M.; **CUNHA, A.L.** HCM calibration method for dual carriageways and expressways using Bayesian inference. In: XXXI ANPET – Research and Teaching in Transport Congress, 2017, Recife. Proceedings of the XXXI ANPET – 2017.
14. PANICE, N.R.; **CUNHA, A.L.** Evaluation of a method for automatic truck axle detection in images. In: XXXI ANPET – Research and Teaching in Transport Congress, 2017, Recife. Proceedings of the XXXI ANPET – 2017.
15. RIBEIRO, E.R.; **CUNHA, A.L.** Exploratory analysis of a method for anomaly detection in traffic data using Wavelet. In: XXXI ANPET – Research and Teaching in Transport Congress, 2017, Recife. Proceedings of the XXXI ANPET – 2017.
16. THEBIT, M.M.; **CUNHA, A.L.** Comparison of traffic data available on the web and obtained by fixed sensors. In: XXXI ANPET, 2017, Recife. Proceedings of XXXI ANPET – 2017.
17. MORELLI, A.B.; **CUNHA, A.L.** Methods for evaluating traffic conditions using Google Traffic and Twitter data. In: XXXII ANPET, 2018, Gramado, RS. Proceedings of XXXII ANPET – 2018.
18. KURAMOTO, B.; **CUNHA, A.L.** Methodological proposal for construction and analysis of a real urban network. In: PLURIS – 8th Luso-Brazilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2018, Coimbra. Proceedings of the 8th PLURIS – 2018.
19. MORELLI, A.B.; **CUNHA, A.L.** A strategy for assessing the impact of flooding on urban road systems. In: XXXIII ANPET – Research and Teaching in Transport Congress, 2019, Balneário Camboriú. Proceedings of the XXXIII ANPET – 2019.
20. MARCOMINI, L.A.; **CUNHA, A.L.** The impact of different video resolutions in a feature-based vehicle detection algorithm. In: XXXIII ANPET, 2019, Balneário Camboriú. Proceedings of XXXIII ANPET – 2019.
21. SILVA, F.A.E.; BESSA JUNIOR, J.E.; COSTA, A.L.; **CUNHA, A.L.**; ANDALICIO, A.F.; VELHO, D.M.C.; NAZARETH, V.S. Evaluation of the effect of climbing lanes on single-lane highway segments. In: XXXIII ANPET – Research and Teaching in Transport Congress, 2019, Balneário Camboriú. Proceedings of the XXXIII ANPET – 2019.
22. KURAMOTO, B.; **CUNHA, A.L.** Usability and limitations of collaborative map data in accessibility analysis. In: XXXIII ANPET – Research and Teaching in Transport Congress, 2019, Balneário Camboriú. Proceedings of the XXXIII ANPET – 2019.
23. MORELLI, A.B.; **CUNHA, A.L.** Identifying vulnerabilities in transport networks: a graph-theoretical approach. In: XXXIII ANPET – Research and Teaching in Transport Congress, 2019, Balneário Camboriú. Proceedings of the XXXIII ANPET – 2019.
24. CAKIJA, D.; ASSIRATI, L.; IVANJKO, E.; **CUNHA, A.L.** Autonomous Intersection Management: A Short Review. In: 61st International Symposium ELMAR-2019, Zadar. Proceedings of the 61st ELMAR Symposium – 2019.
25. VIZIOLI, H.T.; KUŠIC, K.; IVANJKO, E.; **CUNHA, A.L.** A method to calibrate Variable Speed Limit Control on high-truck-share roads: a case study in Brazil. In: Brazilian Technology Symposium - BTSym'20, 2020, Campinas. Smart Innovation, Systems and Technologies – 2020.

26. BOSCO JUNIOR, A.D.; **CUNHA, A.L.** Street and zonal scale relationship between network centrality and economic activities: case study in Curitiba, Brazil. In: PLURIS – Luso-Brazilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2020. Proceedings of the 9th PLURIS – 2020.
27. OLIVATTO, T.F.; PITOMBO, C.S.; **CUNHA, A.L.**; MELANDA, E.A. Relationships between the nutritional status of preschoolers and socioeconomic and urban infrastructure indicators: a CART-based approach. In: PLURIS – Luso-Brazilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2020. Proceedings of the 9th PLURIS – 2020.
28. MORELLI, A.B.; **CUNHA, A.L.** Pedestrian accessibility: impacts of morphological and demographic characteristics on access to facilities. In: XXXV ANPET – Research and Teaching in Transport Congress, 2021. Proceedings of the XXXV ANPET – 2021.
29. MORELLI, A.B.; LOURO, T.V.; **CUNHA, A.L.** Proposal of bikeability indicators from an accessibility perspective: identifying roads best suited for cycle lanes using widely available data. In: XXXVI ANPET – Research and Teaching in Transport Congress, 2022, Fortaleza. Proceedings of the XXXVI ANPET – 2022.
30. MARCOMINI, L.A.; **CUNHA, A.L.** Truck axle detection using Neural Networks: analysis of the number of images in the training dataset. In: ANPET – Research and Teaching in Transport Congress, 2023, Santos. Proceedings of the 37th ANPET – 2023.
31. MORELLI, A.B.; **CUNHA, A.L.** Vulnerability to flooding: how long-trip prevalence reduces the efficiency of alternative routes. In: XXXVIII ANPET – Research and Teaching in Transport Congress, 2024, Florianópolis. Proceedings of the 38th ANPET – 2024.

#### 6.2.4 Conference Proceedings (Abstracts)

1. **CUNHA, A.L.B.N.**; MON-MA, M.L.; ARAÚJO, J.J.; EGAMI, C.Y.; SETTI, J.R. Characterization of the truck fleet in the Anhangüera-Bandeirantes system. In: XIX ANPET – Research and Teaching in Transport Congress, 2005, Recife. Abstracts of Technical Communications of the XIX ANPET Congress, p.1–8 – 2005.
2. MORELLI, A.B.; **CUNHA, A.L.** Incorporating competition into dual accessibility assessment: the competitive equilibrium method. In: ANPET – Research and Teaching in Transport Congress, 2023, Santos. Proceedings of the 37th ANPET – 2023.  
<https://proceedings.science/anpet/anpet-2023/trabalhos/incorporando-competicao-na-avaliacao-de-acessibilidade-dual-o-metodo-do-equilibrio?lang=pt-br>
3. LOURO, T.V.; MORELLI, A.B.; PEDREIRA JUNIOR, J.U.; **CUNHA, A.L.** A metric for evaluating the potential of e-bikes: topographic accessibility. In: ANPET – Research and Teaching in Transport Congress, 2023, Santos. Proceedings of the 37th ANPET – 2023.  
<https://proceedings.science/anpet/anpet-2023/trabalhos/a-metric-for-evaluating-the-potential-of-e-bikes-topographic-accessibility?lang=pt-br>
4. MORELLI, A.B.; **CUNHA, A.L.** Detecting vulnerability on highways: proposal of a network redundancy indicator for segments of the Brazilian road network. In: ANPET – Research and Teaching in Transport Congress, 2023, Santos. Proceedings of the 37th ANPET – 2023.  
<https://proceedings.science/anpet/anpet-2023/trabalhos/detectando-vulnerabilidade-em-rodovias-proposta-de-um-indicador-de-redundancia-d?lang=pt-br>

#### 6.2.5 Conference Proceedings (Extended Abstracts)

1. BESSA JUNIOR, J.E.; LIMA, F.A.A.; **CUNHA, A.L.B.N.**; SETTI, J.R. Use of evolutionary computation in the calibration of the Integration traffic simulator: preliminary study. In: 60th Annual SBPC Meeting, 2008, Campinas, SP. Abstract Book of the 60th SBPC Meeting – 2008.
2. BOSCO JUNIOR, A.D.; **CUNHA, A.L.** Models for trip attraction using collaborative map data. In: XXXIII ANPET – Research and Teaching in Transport Congress, 2019, Balneário Camboriú. Proceedings of the XXXIII ANPET – 2019.

#### 6.2.6 Publications in Open Repositories

1. MARCOMINI, L.A.; **CUNHA, A.L.** A comparison between background modelling methods for vehicle segmentation in highway traffic videos. Scientific article: arXiv – 2018.  
<https://arxiv.org/pdf/1810.02835>

2. OLIVEIRA, G.J.M.; **CUNHA, A.L.** A calibration method structured on Bayesian inference of the HCM speed-flow relationship for freeways and multilane highways and a temporal analysis of traffic behavior. Scientific article: arXiv – 2019.  
<https://arxiv.org/abs/1908.10852>
3. MORELLI, A.B.; **CUNHA, A.L.** Measuring urban road network resilience to extreme events: an application for urban floods. Scientific article: arXiv – 2019.  
<https://arxiv.org/abs/1912.01739>
4. FELICIO, A.B.; **CUNHA, A.L.** Classification of motorcycles using extracted images of traffic monitoring videos. Scientific article: arXiv – 2019.  
<https://arxiv.org/abs/1904.00247>
5. MORELLI, A.B.; **CUNHA, A.L.** Measuring urban resilience: a road network-oriented method. Scientific article: arXiv – 2019.  
<https://arxiv.org/abs/1912.01739>
6. MORELLI, A.B.; **CUNHA, A.L.** Measuring urban road network resilience to extreme events: an application for urban floods. Scientific article: arXiv – 2020.  
<https://arxiv.org/abs/1912.01739>
7. RIBEIRO, E.R.; **CUNHA, A.L.** Historical traffic flow data reconstruction applying Wavelet transform. Scientific article: arXiv – 2020.  
<https://arxiv.org/abs/2006.07741>
8. MARCOMINI, L.A.; **CUNHA, A.L.** Truck axle detection with convolutional neural networks. Scientific article: arXiv – 2022.  
<https://arxiv.org/abs/2204.01868>
9. MORELLI, A.B.; FIEDLER, A.C.; **CUNHA, A.L.** A georeferenced formal employment dataset in Brazilian cities. Scientific article: arXiv – 2023.  
<https://doi.org/10.48550/arXiv.2303.09602>
10. MORELLI, A.B.; **CUNHA, A.L.** Resilience in highways: proposal of roadway redundancy indicators and application in segments of the Brazilian network. Scientific article: arXiv – 2023.  
<https://doi.org/10.48550/arXiv.2312.00731>
11. MORELLI, A.B.; **CUNHA, A.L.** Incorporating competition into dual accessibility assessment: the competitive equilibrium method. Scientific article: arXiv – 2024.  
<https://doi.org/10.48550/arXiv.2403.04879>

## 6.3 Academic Supervision

### 6.3.1 Completed Supervision and Advising

#### 6.3.1.1 Doctoral Theses

1. Gabriel Jurado Martins de Oliveira. *Toward a data-driven framework to analyse temporal and spatial distributions of crashes*. PhD in Infrastructure Engineering – The University of Melbourne. (co-supervisor) — 02/12/2024.

#### 6.3.1.2 Master's Dissertation

1. Elaine Rodrigues Ribeiro. *Exploratory analysis of a method using Wavelet to detect patterns and anomalies in historical traffic data*. — 10/08/2017.  
<DOI: [10.11606/D.18.2017.tde-07112017-212156](https://doi.org/10.11606/D.18.2017.tde-07112017-212156)>
2. Gabriel Jurado Martins de Oliveira. *Calibration of the speed-flow relationship for expressways and multilane highways*. — 20/07/2018.  
<DOI: [10.11606/D.18.2018.tde-10092018-150848](https://doi.org/10.11606/D.18.2018.tde-10092018-150848)>
3. Leandro Arab Marcomini. *Automatic identification of traffic behavior from video images*. — 10/08/2018.  
<DOI: [10.11606/D.18.2018.tde-01102018-102649](https://doi.org/10.11606/D.18.2018.tde-01102018-102649)>
4. Mariana Marçal Thebit. *Reconstruction of synthetic O/D matrix from web-based traffic data*. — 03/09/2018.  
<DOI: [10.11606/D.18.2018.tde-10122018-225948](https://doi.org/10.11606/D.18.2018.tde-10122018-225948)>

5. Natália Ribeiro Panice. *Image-based method for automatic detection of truck axles*. — 13/09/2018.  
<DOI: [10.11606/D.18.2018.tde-11122018-213600](https://doi.org/10.11606/D.18.2018.tde-11122018-213600)>
6. Adriano Belletti Felicio. *Automatic identification of motorcyclists using video image processing*. — 28/06/2019.  
<DOI: [10.11606/D.18.2020.tde-12052020-170835](https://doi.org/10.11606/D.18.2020.tde-12052020-170835)>
7. Bruna Kuramoto. *Exploration of crowdsourced map data in assessments of Brazilian urban morphologies*. — 28/06/2019.  
<DOI: [10.11606/D.18.2019.tde-20082019-084513](https://doi.org/10.11606/D.18.2019.tde-20082019-084513)>
8. Andre Borgato Morelli. *Exploratory analysis of resilience in urban road networks*. — 22/10/2019.  
<DOI: [10.11606/D.18.2020.tde-13012020-153303](https://doi.org/10.11606/D.18.2020.tde-13012020-153303)>
9. Jessica Tong, Hans Gao, and Marcus Rzanovski. *Measuring the temporal and spatial impacts of short-term events on pedestrian flows*. The University of Melbourne. (co-supervisor) — 05/11/2020.
10. Alceu Dal Bosco Junior. *Usability of points of interest and network centrality from crowdsourced maps to analyze trip attraction: case study in Curitiba*. — 10/12/2020.  
<DOI: [10.11606/D.18.2020.tde-18042022-143053](https://doi.org/10.11606/D.18.2020.tde-18042022-143053)>
11. Helena Stein Stefani. *Traffic flow forecasting in urban expressways using speed data from online sources*. — 05/08/2021.  
<DOI: [10.11606/D.18.2021.tde-22082022-091919](https://doi.org/10.11606/D.18.2021.tde-22082022-091919)>
12. Paola Yumi Matsumoto. *Calibration of Cellular Automata models for simulating vehicle traffic behavior on São Paulo highways*. — 19/08/2022.  
<DOI: [10.11606/D.18.2022.tde-18102022-103557](https://doi.org/10.11606/D.18.2022.tde-18102022-103557)>
13. Crhstian Emilio Ribeiro. *Evaluation of deep neural networks for vehicle detection in satellite images*. — 27/08/2024.  
<DOI: [10.11606/D.18.2024.tde-31102024-114415](https://doi.org/10.11606/D.18.2024.tde-31102024-114415)>

#### 6.3.1.3 Mobility Program

1. [Murilo Castanho dos Santos](#). *Survey of accident data on highways at the Federal Police of Brazil*. Santander Universities Ibero-American Scholarship Program 2019 – University of Porto, Faculty of Engineering (FEUP). — 10/01/2020.

#### 6.3.1.4 Scientific Initiation

1. Fernando Silva Lima. *Calibration of fundamental parameters of speed-flow curves on divided highways in the state of São Paulo*. 2017. Undergraduate research (Civil Engineering) – University of São Paulo. CNPq PIBIC Scholarship — 08/01/2016 to 07/31/2017.
2. Luiza Fonseca Orlando. *Characterization of driver behavior from data shared on traffic mapping services*. 2018. Undergraduate research (Civil Engineering) – University of São Paulo. No scholarship — 10/24/2017 to 10/23/2018.
3. Paulo Cesar Rodrigues Filho. *Calibration of driver behavior parameters on São Paulo highways for the VISSIM simulation model*. 2018. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 08/17/2017 to 08/16/2018.
4. Luciane Sobral. *Analysis of the impact of releasing 91-ton sugarcane trucks on road infrastructure*. 2018. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 09/05/2017 to 09/04/2018.
5. Leticia Lourenço. *Analysis of changes in vehicle weight legislation on pavement lifespan*. 2018. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 09/07/2017 to 09/06/2018.
6. Eraldo Dias de Castro Neto. *Accessibility analysis in bike lanes based on total cyclist effort*. 2019. Undergraduate research (Civil Engineering) – University of São Paulo. CNPq PIBIC Scholarship — 08/01/2019 to 07/31/2020.
7. Danilo Bovo Carneiro. *Implementation of a highway traffic simulation model using Cellular Automata*. 2020. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 08/13/2019 to 08/12/2020.

8. Lucas Locatelli Helena. *Image-based method for axle detection and truck classification*. 2020. Undergraduate research (Electrical Engineering) – University of São Paulo. CNPq Project Scholarship No. 436954/2018-4 — 08/31/2020 to 02/01/2021.
9. Pedro Henrique de Lima Bertoli. *Impact of the pandemic on highway travel profiles in São Paulo*. 2022. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 09/07/2021 to 09/06/2022.
10. Felipe Urso Parreira Pinto. *Effect of lockdown on the COVID-19 pandemic: comparative study between Australia and Brazil*. 2022. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 08/19/2021 to 08/18/2022.
11. Andre de Carvalho Fiedler. *Cataloguing urban sprawl processes in Brazilian cities using graph theory*. 2022. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 08/28/2021 to 08/27/2022.
12. Miguel José Sertori. *Creation of a truck image database for automatic classification*. 2023. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 08/16/2022 to 08/15/2023.
13. Luan Andre Contel. *Creation of a satellite image database for vehicle detection*. 2024. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 08/31/2023 to 08/30/2024.
14. Guilherme Lima Bigatao. *Analysis of travel patterns made by electric and conventional bicycles in a bike-sharing system in São Paulo*. 2024. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship — 08/31/2023 to 08/30/2024.

#### 6.3.1.5 Undergraduate Final Projects

1. Diego César Corte. *Proposal of a new geometric design for the most critical intersection of the Régis Bittencourt highway*. 2015. Course (Civil Engineering) – University of São Paulo.
2. Guilherme Niobey Frossard. *Proposal for a new passenger terminal at São Carlos airport*. 2015. Course (Civil Engineering) – University of São Paulo.
3. Humberto Claudio Manrique. *Development of a tool for highway capacity and level of service analysis*. 2015. Course (Civil Engineering) – University of São Paulo.
4. André Borgato Morelli. *Bike lane network project for the municipality of Monte Alto, SP*. 2016. Course (Civil Engineering) – University of São Paulo.
5. Rafael Kiyoshi Shitara. *Evaluation of traffic signal plans at critical intersections in São Carlos*. 2016. Course (Civil Engineering) – University of São Paulo.
6. Fernando Silva Lima. *Comparison of level of service on highways using the HCM method and one calibrated for São Paulo highways*. 2018. Course (Civil Engineering) – University of São Paulo.
7. Isadora Gaidzakian Jorge. *Campus readiness for autonomous vehicle use – study on parking space underutilization*. 2018. Course (Civil Engineering) – University of São Paulo.
8. Francisco Mattos Fortes. *Design of signal progression system for Dr. Carlos Botelho Avenue and 15 de Novembro Street*. 2019. Course (Civil Engineering) – University of São Paulo.
9. Kaique Dantas Oliveira. *Urban mobility intervention at Antonio Adolpho Lobbe Square (Cristo roundabout), São Carlos-SP*. 2019. Course (Civil Engineering) – University of São Paulo.
10. Luis Gustavo Müller. *Feasibility study for implementing a parcel locker network in Piracicaba*. 2019. Course (Civil Engineering) – University of São Paulo.
11. Eduardo Sene Eisele. *Feasibility study for establishing an urban distribution center in São Carlos*. 2019. Course (Civil Engineering) – University of São Paulo.
12. Felipe Baldisseri. *Evaluation of a new metro line in the São Paulo metropolitan region based on São Paulo Metro's Origin-Destination Survey*. 2019. Course (Civil Engineering) – University of São Paulo.
13. Edmar Pereira dos Santos Filho. *Diesel consumption reduction in railway operation stops through automatic locomotive shutdown*. 2021. Course (Civil Engineering) – University of São Paulo.
14. Henrique Luiz Shibata Gino. *Proposal for an operational model for bus travel during the COVID-19 pandemic*. 2021. Course (Civil Engineering) – University of São Paulo.



15. Eraldo Dias de Castro Neto. *Design of an energy-efficient bike lane for users in São Carlos*. 2021. Course (Civil Engineering) – University of São Paulo.
16. Breno da Cunha Costa. *Application of ESG policies in logistics operations of a retail company*. 2021. Course (Civil Engineering) – University of São Paulo.
17. Gabriel Passos Bandeira. *Impact analysis of mass testing on the spread of COVID-19 in Ribeirão Preto during the first half of 2021*. 2021. Course (Civil Engineering) – University of São Paulo.
18. Láislá Beatriz de Carvalho Penido. *Feasibility analysis for implementing a parcel locker system in Campinas/SP*. 2021. Course (Civil Engineering) – University of São Paulo.
19. Helena Tanoue Vizioli. *Implementation of variable speed limit control on Bandeirantes Highway*. 2022. Course (Civil Engineering) – University of São Paulo.
20. Tainan Rodrigues Corrêa. *Fixed-time isolated traffic signal program proposal at an intersection in Lençóis Paulista-SP*. 2023. Course (Civil Engineering) – University of São Paulo.
21. Francisco Andreson de Moura. *Application of operations research in logistics operation of a distribution center*. 2023. Course (Civil Engineering) – University of São Paulo.
22. Pedro Henrique de Lima Bertoli. *Economic and financial feasibility study for implementing a bus line between Lençóis Paulista/SP and São Carlos/SP*. 2024. Course (Civil Engineering) – University of São Paulo.
23. Miguel José Sertori. *Road capacity study due to the installation of a residential building in Bebedouro – SP*. 2024. Course (Civil Engineering) – University of São Paulo.
24. Guilherme Souza Araujo. *Financial feasibility analysis of a solar power generation plant in Paraíba*. 2024. Course (Civil Engineering) – University of São Paulo.

### 6.3.2 Ongoing Supervision and Advising

#### 6.3.2.1 Doctoral

1. [Andre Borgato Morelli](#). *Analysis of vulnerability in Brazilian urban networks: Exploring the impact of floods and their relationship with morphology and land use*.
2. [Leandro Arab Marcomini](#). *Method for detecting and classifying truck axles based on video images*.
3. [Elaine Rodrigues Ribeiro](#). *Analysis of motorcyclist behavior in urban segments: relationship between riding patterns and driver profile*.
4. [Thiago Vinicius Louro](#). *Assessing the potential impacts of accessibility and spatial equity of electric bicycles in São Paulo, Brazil*.
5. [Pedro Henrique Caldeira Caliari](#). *Evaluation of causal inference and spatial effects in travel behavior*.

#### 6.3.2.2 Master's

1. [Andressa Vitória Costa](#). *Accessibility to Social Services in Belo Horizonte-MG*.
2. [Maria Eduarda Saquetto Michelini](#). *Development of a pollutant emissions estimation model for Brazilian scenarios*.
3. [Rodrigo Otávio Fraga Peixoto de Oliveira](#). *Urban resilience assessment through a comparative study of flood forecasting methods*.

#### 6.3.2.3 Scientific Initiation

1. Patrick Gabriel Quintino. *Impact of truck fleet composition on emergency escape ramp design*. 2024. Undergraduate research (Civil Engineering) – University of São Paulo. PUB Scholarship.
2. Gabriel Brunhara Alizon. *Vulnerability of urban roads to extreme weather events using topographic and morphological characteristics*. 2024. Undergraduate research (Civil Engineering) – University of São Paulo. CNPq PIBIC Scholarship.

## 6.4 Research Projects

### 6.4.1 Project Coordinator

1. CNPq Process 436954/2018-4. *Image-based method for axle detection and truck classification*. University of São Paulo (USP). CNPq Call No. 28/2018 – Universal. — Project concluded on 04/29/2022.

2. CNPq Process 311964/2022-2. *Artificial Intelligence: development of tools for urban mobility*. University of São Paulo (USP). CNPq Call No. 09/2022 – Research Productivity Grant (PQ). — Duration: 03/01/2023 to 02/28/2026.
3. CNPq Process 409087/2023-8. *Rethinking traffic modeling in transport networks for the next generation of smart and connected cities*. University of São Paulo (USP). CNPq/MCTI Call No. 10/2023 – Line B – Consolidated Research Groups. — Duration: 12/05/2023 to 12/31/2026.

#### 6.4.2 Research Collaborator

1. *Studies aimed at promoting sustainable and safe urban mobility*. Coordinator: Prof. Paulo Cesar Marques da Silva, University of Brasília (UnB). CAPES/FCT Program No. 39/2017 — Duration: 12/05/2023 to 12/31/2026.
2. *Application of deep learning in intelligent traffic control system*. Coordinator: Assoc. Prof. Edouard Ivanjko, University of Zagreb (UNIZG). — Duration: 05/11/2018 to 12/31/2018.
3. *Development of a Highway Capacity Manual for São Paulo state roads*. Technical-Scientific Cooperation Agreement between ARTESP (São Paulo State Transport Agency) and USP-EESC (School of Engineering of São Carlos). Coordinator: Full Prof. José Reynaldo Anselmo Setti, University of São Paulo (USP-EESC). — Duration: November 2018 to present.
4. *Innovative Control Strategies for Sustainable Mobility in Smart Cities*. Coordinator: Prof. Tonci Caric, University of Zagreb (UNIZG). — Duration: 05/25/2021 to 12/31/2021.