André Luiz Cunha, Ph.D.

Professor em Engenharia Civil

DADOS PESSOAIS

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Links Google Scholar [1] | ORCID [2] | LinkedIn [3] | Lattes [4] | LinkTree [5]
Palavras-chave Transport Modelling, Artificial Intelligence, Mobility, Accessibility, Vulnerability, Smart Cities, Simulation

FORMAÇÃO

1. **Doutorado em Engenharia de Transportes**   Nov. 2013
   Universidade de São Paulo (USP), Escola de Engenharia de São Carlos (EESC), Brasil
   Tese: "Sistema automático para obtenção de parâmetros do tráfego veicular a partir de imagens de vídeo usando OpenCV"
   Orientador: Prof. José Reynaldo Anselmo Setti
   DOI: 10.11606/T.18.2013.tde-19112013-165611
   Financiado pelo Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brasil.

2. **Mestrado em Engenharia de Transportes**   Out. 2007
   Universidade de São Paulo (USP), Escola de Engenharia de São Carlos (EESC), Brasil
   Dissertação: "Evaluation of performance measurement impact on truck passenger car equivalents"
   Orientador: Prof. José Reynaldo Anselmo Setti
   DOI: 10.11606/D.18.2007.tde-27112007-094400
   Financiado pelo Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brasil.

3. **Bacharel em Engenharia Civil**   Fev. 2004
   Universidade Federal do Mato Grosso do Sul (UFMS), Campo Grande, Brasil
   GPA: $3.79/4.00 \rightarrow (9.5/10.0)$

EXPERIÊNCIA

Acadêmica

1. **Universidade de São Paulo (USP-EESC)**   Jul. 2014 – atual
   Professor Doutor (MS-3.2)   *São Carlos, Brasil*
   Regime de Dedicação Integral à Docência e à Pesquisa (RDIDP)

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[1] https://scholar.google.com.br/citations?user=HI0CQJMAAAAJ&hl=en
[2] https://orcid.org/0000-0002-0520-0621
[3] https://www.linkedin.com/in/prof-alcunha/
[4] http://lattes.cnpq.br/7996696632908127
[5] https://linktr.ee/prof_alcunha

2. **University of Zagreb (UNIZG)** Abr. 2022
Professor Visitante *Zagreb, Croácia*
Programa ERASMUS+: Virtual Teaching Mobility Agreement (Carga Horária: 8h)

3. **University of Melbourne (UniMelb)** Jan. 2020 – Dez. 2020
Professor Visitante *Melbourne, Australia*
Programa CAPES-Print – Professor Visitante Junior No. 88887.371506/2019-00

4. **University of Zagreb (UNIZG)** Jun. 2018
Professor Visitante *Zagreb, Croácia*
Programa ERASMUS+: Higher Education Mobility Agreement (UNIZG/USP-EESC) (Carga horária: 13h)

5. **Universidade de São Paulo (USP)** Set. 2017
Pesquisador Visitante *São Paulo, Brasil*
TUM-USP Workshop on Sustainable Mobility financiado por BAYLAT/FAPESP

6. **Universidade do Minho (UMINHO)** Jul. 2017
Pesquisador Visitante *Guimarães, Portugal*
Missão financiada pela CAPES-FCT n. 39/2014

7. **Technical University of Munich (TUM)** Nov. 2016 – Dez. 2016
Professor Visitante *Munich, Alemanha*
TUM-USP Workshop on Sustainable Mobility financiado por BAYLAT/FAPESP

8. **São Paulo State University (UNESP)** Mar. 2010 – Dez. 2010
Adjunct Professor *Bauru, Brasil*
College of Engineering Bauru (FEB), Civil Engineering undergraduate course.

9. **Universidade de São Paulo (USP-EESC)** Feb. 2009 – Jun. 2009
Graduate Assistant *São Carlos, Brasil*

10. **Universidade de São Paulo (USP-EESC)** Feb. 2006 – Jun. 2006
Graduate Assistant *São Carlos, Brasil*

Professional Experience

1. **CCR Highway RioSP (Via Dutra)** Jun. 2023 – Dez. 2023
Technical Consultant – Transportation Engineering Projects *São Paulo, Brasil*
Evaluated site conditions to determine optimal placement of truck escape ramps on Via Dutra's new descending lane, in Rio de Janeiro (BR-116 highway). Simulated operational scenarios to validate design effectiveness.

2. **ARTERIS Autopista Litoral Sul (ALS)** Nov. 2019 – Dez. 2019
Technical Consultant – Transportation Engineering Projects *Curitiba, Brasil*
Directed field testing of BR-376's km 667 truck escape ramp, developing protocols and analyzing performance metrics for loaded vehicles at multiple approach speeds, with findings implemented in concessionaire safety standards[6]. Delivered a detailed technical assessment of ramp functionality under real-world conditions.

3. **Universidade de São Paulo (USP-EESC)** Feb. 2013 – Jun. 2014
Research Assistant (Laboratory Specialist) *São Carlos, Brasil*
Develop scientific research in projects led by faculty, with didactic-scientific and extension focus.

4. **Transport Engineering Consultants Ltd. (TECTRAN)** Apr. 2012 – Dez. 2012
Consultant in Transport Planning and Engineering *Belo Horizonte, Brasil*
Led the development and integration of structured databases to support EPELT, the Transport Logistics Planning Office of the Minas Gerais State Secretariat.

5. **Institute of Mathematical and Computer Sciences (ICMC-USP)** Mar. 2012 – Apr. 2012
Civil Engineer *São Carlos, Brasil*
Executed AutoCAD-based infrastructure digitization, oversaw routine building maintenance, and participated in the supervision of ongoing construction projects at ICMC.

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[6]Interview featured on Rede Globo's Jornal Hoje program (https://globoplay.globo.com/v/8165879/).

TEACHING EXPERIENCE

Lecturer at Universidade de São Paulo (USP)

Undergratuate

1. *STT0618 - Air Transport* *2014*
   4th year elective transport course in Civil Engineering curriculum. Designed the lecturers, exercise and lab sessions. Small classroom of 10+ students.

2. *STT0403 - Airports, Ports and Waterways* *2015–atual*
   5th year compulsory transport course in Civil Engineering curriculum. Designed the lecturers and exercise sessions. Taught in classes of 50+ students.

3. *STT0408 - Fundamentals of Transportation Engineering* *2015–atual*
   3rd year compulsory transport course in Civil Engineering curriculum. Designed and delivered this core transport course, integrating lectures, exercises, and applied lab sessions. Taught classes of 50+ students using inverted classroom strategies and project-based learning, fostering active student engagement and applied problem-solving. The course received an average student rating of 4.5/5.0, reflecting strong satisfaction and engagement.

4. *STT0628 - Traffic Engineering and Road Traffic Simulation* *2015–atual*
   3rd year elective transport course in Civil Engineering curriculum. Designed the lecturers, exercise and lab sessions. Small classroom of 10+ students. atuals the fundamental theory of traffic simulation, while equipping students to apply concepts in practice and develop key technical skills.

5. *1800093 - Final Undergraduate Project* *2016–atual*
   5th year compulsory transport course in Civil Engineering curriculum. My role involves supervising and guiding students through the development of their final engineering projects, with a focus on applying transport engineering concepts to real-world problems. I support students in defining research questions, conducting technical analyses, and producing professional-grade reports, while fostering independent learning and critical thinking. I have supervised 25+ projects in this course.

6. *STT0412 - Computational Tools Applied to Civil Engineering* *2016–atual*
   2nd year elective transport course in Civil Engineering curriculum. I designed and implemented this course to introduce students to computational thinking and practical toolsets for engineering problem-solving. The course encourages students to develop programming skills and apply digital tools—such as spreadsheets, CAD, GIS, and programming languages—to real-world challenges in civil and transport engineering. Small classroom of 20+ students.

7. *1800122 - Supervised Internship* *2019–atual*
   5th year compulsory transport course in Civil Engineering curriculum. My role involves supervising and evaluating student internships conducted in professional engineering environments. I oversee each student's engagement with the host company, assess their performance, and ensure that the internship experience aligns with academic and professional learning objectives. I have supervised 15+ students.

8. *STT0610 - Logistics and Transportation* *2025–atual*
   4th year elective transport course in Civil Engineering curriculum. Redesigned course curriculum to address contemporary logistics and supply chain challenges: AI-driven logistics tools, GIS-based route planning, and Green logistics best practices. Small classroom of 10+ students.

Graduate

1. *STT5874 - Advanced Topics in Traffic Engineering* *2015–atual*
   Elective course in the Transportation Engineering Program. Coordinate the course, designed the lectures and lab sessions. Small classroom of 10+ students. Provides a foundation in traffic simulation theory and engages students in applying concepts through real-world scenarios and hands-on technical training.

2. *STT5898 - Applied Statistics for Transportation Engineering* *2015–atual*
   Elective course in the Transportation Engineering Program. Coordinate the course, designed the lectures and exercises. Small classroom of 15+ students. This course serves as a foundational milestone, equipping students with the core statistical methods required for graduate-level study and research.

3. *STT5900 - Multivariate Data Analysis Applied to Transportation Engineering*   *2015–atual*
Elective course in the Transportation Engineering Program. Coordinate the course, designed the lectures and exercises. Small classroom of 15+ students. Course introducing AI techniques using R—such as neural networks, clustering, PCA, decision trees, and genetic algorithms—applied to each student's own dataset. The course culminates in the submission of an article atualing the dataset, methodology, and preliminary results.

4. *STT5859 - Transport Technology*   *2016–atual*
Compulsory course in the Transportation Engineering Program. This core course is jointly taught by four professors and provides a comprehensive foundation in transportation planning and operations. Designed for students at all levels, it offers a structured, level-based approach to essential concepts and methodologies in the field. Small classroom of 15+ students.

5. *STT5905 - Bibliographic Research for Transportation Systems*   *2017–atual*
Compulsory course in the Transportation Engineering Program. A core course that guides and encourages students to develop a comprehensive literature review, fostering critical analysis and familiarity with key academic sources in the field. Small classroom of 15+ students.

6. *STT5909 - Data Analysis Laboratory with Open-Source Software R*   *2017*
Elective course in the Transportation Engineering Program. Coordinate the course, designed the lectures and exercises. Small classroom of 10+ students. This course was designed to provide a foundational introduction to R programming for solving transport engineering problems.

SUPERVISION

- **PhD Students**: 5 (1 completed, 4 ongoing)
- **MSc Students**: 16 (13 completed, 3 ongoing)
- **Scientific Initiation**: 16 (14 completed, 2 ongoing)
- **Undergraduate Projects**: 25 completed

RESEARCH INCOME

I have secured over **BRL 820,000**[7] (approximately USD 143,860 | EUR 126,150 | AUD 221,620) in research funding, during my tenure at USP, with projects spanning intelligent transport systems and sustainable mobility solutions.

1. **Redesign and Validate the Truck Escape Ramp on the BR-116 (Via Dutra)**   BRL 180,000
Role: Principal Investigator   2025–2025
Sponsor: Group CCR Highways (RioSP), Brasil

2. **Rethinking traffic modeling in transport networks for the next generation of smart and connected cities**   BRL 72,000
Role: Principal Investigator   2023–2026
Sponsor: CNPq Consolidated Research Groups Grant (Process 409087/2023-8), Brasil

3. **Artificial Intelligence: development of tools for urban mobility**   BRL 40,000
Role: Principal Investigator   2023–2026
Sponsor: CNPq Research Productivity Grant (Process 311964/2022-2), Brasil

4. **Evaluation of Truck Escape Ramp on the BR-116 (Via Dutra)**   BRL 72,000
Role: Principal Investigator   2023–2023
Sponsor: Group CCR Highways (RioSP), Brasil

5. **Innovative Control Strategies for Sustainable Mobility in Smart Cities**   EUR 8,000
Role: Co-Principal Investigator   2021–2021
Sponsor: University of Zagreb (UNIZG), Croácia

6. **Visiting Professorship**   AUD 150,000
Role: Principal Investigator   2019–2019
Sponsor: CAPES-Print Program (Process 88887.371506/2019-00), Brasil

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[7]Exchange rates used: 1 EUR ≈ 6.50 BRL; 1 USD ≈ 5.70 BRL; 1 AUD ≈ 3.70 BRL.

7. **Site Optimization for Truck Escape Ramps on the BR-376** BRL 150,000
   Role: Principal Investigator 2019–2019
   Sponsor: ARTERIS Autopista Litoral Sul (ALS), Brasil

8. **Image-based method for axle detection and truck classification** BRL 15,000
   Role: Principal Investigator 2018–2022
   Sponsor: CNPq Universal Grant (Process 436954/2018-4), Brasil

9. **Application of deep learning in intelligent traffic control system** EUR 8,500
   Role: Co-Principal Investigator 2018–2018
   Sponsor: University of Zagreb (UNIZG), Croácia

10. **Studies aimed at promoting sustainable and safe urban mobility** BRL 20,000
    Role: Co-Principal Investigator 2013–2016
    Sponsor: CAPES/FCT Program (Process 39/2017), Brasil

PUBLICATIONS

Peer-Reviewed Journal

1. DE OLIVEIRA, G.J.M.; LAVIERI, P.S.; **CUNHA, A.L.** (2023) Integrating a non-gridded space reatualation into a graph neural networks model for citywide short-term crash risk prediction. Urban Informatics. v.2, p.7.
   <DOI: 10.1007/s44212-023-00032-6>

2. FLEURY, M.P.; KAMAKURA, G.K.; PITOMBO, C.S.; **CUNHA, A.L.B.N.**; FERREIRA, F.B.; LINS DA SILVA, J. (2023) Assessing and Predicting Geogrid Reduction Factors after Damage Induced by Dropping Recycled Aggregates. Sustainability. v.15, p.9942.
   <DOI: 10.3390/su15139942>

3. FLEURY, M.P.; KAMAKURA, G.K.; PITOMBO, C.S.; **CUNHA, A.L.B.N.**; LINS DA SILVA, J. (2023) Prediction of non-woven geotextiles' reduction factors for damage caused by the drop of backfill materials. Geotextiles and Geomembranes. v.1, p.1 - 11.
   <DOI: 10.1016/j.geotexmem.2023.05.004>

4. SILVA, F.A.E.; BESSA JUNIOR, J.E.; COSTA, A.L.; **CUNHA, A.L.**; VELHO, D.M.C.; ANDALICIO, A. (2023) Exploratory analysis of the VISSIM simulation model for two-lane highways. Engenharia Civil UM (Braga), n.63, p.6-17.
   <DOI: 10.21814/ecum.4493>

5. SILVA, F.A.; BESSA JUNIOR, J.E.; COSTA, A.L.; **CUNHA, A.L.**; VELHO, D.M.C. (2022) Analysis of no-passing zones to assess the level of service on two-lane rural highways in Brasil. Case Studies on Transport Policy. v.10, p.248-256.
   <DOI: 10.1016/j.cstp.2021.12.006>

6. MORELLI, A. B.; **CUNHA, A.L.** (2021) Assessing vulnerabilities in transport networks: a graph-theoretic approach. Transportes (Rio de Janeiro). v.29, p.161-172.
   <DOI: 10.14295/transportes.v29i1.2250>

7. SILVA, F.A.; BESSA JÚNIOR, J.E.; COSTA, A.L.; **CUNHA, A.L.**; ANDALÍCIO, A.F.; DA COSTA VELHO, D.M.; NAZARETH, V.S. (2021) Evaluation of the effect of climbing lanes on segments of two-lane highways. Transportes (Rio de Janeiro). v.29, p.1-16.
   <DOI: 10.14295/transportes.v29i1.2359>

8. MORELLI, A.B.; **CUNHA, A.L.** (2021) Measuring urban road network vulnerability to extreme events: An application for urban floods. Transportation Research Part D – Transport and Environment. v.93, p.102770.
   <DOI: 10.1016/j.trd.2021.102770>

9. MARTINS, D.O.; OLIVEIRA, G.J.M.; MORAES, F.R.; SILVA, I.; **CUNHA, A.L.** (2020) Geomatics data management system. Revista Brasileira de Geomática. v.8, p.056-069.
   <DOI: 10.3895/rbgeo.v8n1.10141>

10. PIANUCCI, M.N.; PITOMBO, C.S.; **CUNHA, A.L.**; LIMA SEGANTINE, P.C. (2019) 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.
    <DOI: 10.14295/transportes.v27i4.1409>

11. OLIVEIRA, J.V.M.; LAROCCA, A.P.C.; ARAUJO NETO, J.O.; **CUNHA, A.L.**; SANTOS, M.C.; SCHAAL, R.E. (2019) Rigid Bridges Health Dynamic Monitoring Using 100 Hz GPS Single-Frequency and Accelerometers. Positioning. v.10, p.17-33.
    <DOI: 10.4236/pos.2019.102002>

12. DE OLIVEIRA, J.V.M.; LAROCCA, A.P.C.; DE ARAÚJO NETO, J.O.; CUNHA, A.L.; DOS SANTOS, M.C.; SCHAAL, R.E. (2019) Vibration monitoring of a small concrete bridge using wavelet transforms on GPS data. Journal Of Civil Structural Health Monitoring. v.9, p.397-409.
    <DOI: 10.1007/s13349-019-00341-y>

13. LINDNER, A.; PITOMBO, C.S.; **CUNHA, A.L.** (2017) Estimating motorized travel mode choice using classifiers: An application for high-dimensional multicollinear data. Travel Behaviour and Society. v.6, p.100-109.
    <DOI: 10.1016/j.tbs.2016.08.003>

14. SOUZA, N.C.; PITOMBO, C.; **CUNHA, A.L.**; LAROCCA, A.P.C.; DE ALMEIDA FILHO, G.S. (2017) Model for classification of linear erosion processes along railways through decision tree algorithm and geotechnologies. Boletim de Ciências Geodésicas. v.23, p.72-86.
    <DOI: 10.1590/S1982-21702017000100005>

15. ANDRADE, G.R.; PITOMBO, C.; **CUNHA, A.L.N.**; SETTI, J.R. (2016) A Model for Estimating Free-Flow Speed on Brasilian Expressways. Transportation Research Procedia. v.15, p.378-388.
    <DOI: 10.1016/j.trpro.2016.06.032>

16. LAROCCA, A.P.C.; ARAÚJO NETO, J.O.; TRABANCO, J.L.A.; BARBOSA, A.C.B.; **CUNHA, A.L.B.N.**; SCHAAL, R.E. (2015) 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.
    <DOI: 10.1590/S1982-21702015000200017>

17. LAROCCA, A.P.C.; ARAUJO NETO, J.O.; BARBOSA, A.C.B.; TRABANCO, J.L.A.; **CUNHA, A.L.B.N.** (2014) 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.
    <DOI: 10.9790/3021-04920920>

18. **CUNHA, A.L.**; SETTI, J.R. (2011) Truck equivalence factors for divided, multilane highways in Brasil. Procedia: Social and Behavioral Sciences. v.16, p.248-258.
    <DOI: 10.1016/j.sbspro.2011.04.447>

Conference Proceedings

1. MORELLI, A.B.; **CUNHA, A.L.** (2024) 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.

2. MARCOMINI, L.A.; **CUNHA, A.L.** (2023) 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.

3. MORELLI, A.B.; LOURO, T.V.; **CUNHA, A.L.** (2022) 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.

4. MORELLI, A.B.; **CUNHA, A.L.** (2021) 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.

5. OLIVATTO, T.F.; PITOMBO, C.S.; **CUNHA, A.L.**; MELANDA, E.A. (2020) Relationships between the nutritional status of preschoolers and socioeconomic and urban infrastructure indicators: a CART-based approach. In: PLURIS – Luso-Brasilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2020. Proceedings of the 9th PLURIS.

6. BOSCO JUNIOR, A.D.; **CUNHA, A.L.** (2020) Street and zonal scale relationship between network centrality and economic activities: case study in Curitiba, Brasil. In: PLURIS – Luso-Brasilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2020. Proceedings of the 9th PLURIS.

7. VIZIOLI, H.T.; KUŠIC, K.; IVANJKO, E.; **CUNHA, A.L.** (2020) A method to calibrate Variable Speed Limit Control on high-truck-share roads: a case study in Brasil. In: Brasilian Technology Symposium - BTSym'20, 2020, Campinas. Smart Innovation, Systems and Technologies.

8. CAKIJA, D.; ASSIRATI, L.; IVANJKO, E.; **CUNHA, A.L.** (2019) Autonomous Intersection Management: A Short Review. In: 61st International Symposium ELMAR-2019, Zadar. Proceedings of the 61st ELMAR Symposium.

9. MORELLI, A.B.; **CUNHA, A.L.** (2019) 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.

10. KURAMOTO, B.; **CUNHA, A.L.** (2019) 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.

11. SILVA, F.A.E.; BESSA JUNIOR, J.E.; COSTA, A.L.; **CUNHA, A.L.**; ANDALICIO, A.F.; VELHO, D.M.C.; NAZARETH, V.S. (2019) 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.

12. MARCOMINI, L.A.; **CUNHA, A.L.** (2019) The impact of different video resolutions in a feature-based vehicle detection algorithm. In: XXXIII ANPET, 2019, Balneário Camboriú. Proceedings of XXXIII ANPET.

13. MORELLI, A.B.; **CUNHA, A.L.** (2019) 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.

14. KURAMOTO, B.; **CUNHA, A.L.** (2018) Methodological proposal for construction and analysis of a real urban network. In: PLURIS – 8th Luso-Brasilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2018, Coimbra. Proceedings of the 8th PLURIS.

15. MORELLI, A.B.; **CUNHA, A.L.** (2018) Methods for evaluating traffic conditions using Google Traffic and Twitter data. In: XXXII ANPET, 2018, Gramado, RS. Proceedings of XXXII ANPET.

16. THEBIT, M.M.; **CUNHA, A.L.** (2017) Comparison of traffic data available on the web and obtained by fixed sensors. In: XXXI ANPET, 2017, Recife. Proceedings of XXXI ANPET.

17. RIBEIRO, E.R.; **CUNHA, A.L.** (2017) 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.

18. PANICE, N.R.; **CUNHA, A.L.** (2017) 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.

19. OLIVEIRA, G.J.M.; **CUNHA, A.L.** (2017) 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.

20. ASSIS, R.K.M.; DURAN, J.B.C.; **CUNHA, A.L.**; PITOMBO, C.S.; FERNANDES JUNIOR, J.L. (2016) Application of Artificial Neural Networks for predictive modeling of pavement functional classification. In: PLURIS – Luso-Brasilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2016, Maceió. Proceedings of the 7th PLURIS.

21. FERREIRA, F.A.; PITOMBO, C.S.; **CUNHA, A.L.** (2016) Forecasting mode choice on a university campus using binomial logistic regression. In: PLURIS – Luso-Brasilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2016, Maceió. Proceedings of the 7th PLURIS.

22. THEBIT, M.M.; **CUNHA, A.L.**; PITOMBO, C.S. (2016) Relationship between bus mode supply and modal choice for airport access: a data mining approach. In: PLURIS – Luso-Brasilian Congress on Urban, Regional, Integrated and Sustainable Planning, 2016, Maceió. Proceedings of the 7th PLURIS.

23. RIBEIRO, E.R.; **CUNHA, A.L.** (2016) 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.

24. ANDRADE, G.R.; PITOMBO, C.S.; **CUNHA, A.L.B.N.**; SETTI, J.R.; FERRAZ, A.C.P. (2015) Forecasting free-flow speed on São Paulo expressways and highways. In: 9th Brasilian Congress of Highways and Concessions – CBR&C, 2015, Brasília. Proceedings of the 9th CBR&C.

25. ROCHA, S.S.; PIANUCCI, M.N.; PITOMBO, C.S.; **CUNHA, A.L.B.N.** (2015) 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.

26. **CUNHA, A.L.B.N.**; SETTI, J.R.; GONZAGA, A. (2013) 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.

27. BESSA JUNIOR, J.E.; **CUNHA, A.L.B.N.**; SETTI, J.R. (2011) 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.

28. **CUNHA, A.L.B.N.**; SETTI, J.R. (2009) Equivalence factors for trucks on dual carriageway highways. In: 6th Brasilian Congress of Highways and Concessions – CBR&C, 2009, Florianópolis, SC. Proceedings of the 6th CBR&C.

29. **CUNHA, A.L.B.N.**; MODOTTI, M.M.; SETTI, J.R. (2008) Truck classification through cluster analysis. In: XXII ANPET – Research and Teaching in Transport Congress, 2008, Fortaleza, CE. Proceedings of the XXII ANPET.

30. BESSA JUNIOR, J.E.; LIMA, F.A.A.; **CUNHA, A.L.B.N.**; SETTI, J.R. (2008) 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.

31. **CUNHA, A.L.B.N.**; SETTI, J.R. (2006) 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.

AWARDS & HONORS

- **ANPET Scientific Production Award**   2023
  National Agency for Transportation Research and Education (ANPET).

- **Excellence Certificate**   2017
  Best professor of the Department of Transportation Engineering (USP-EESC-STT),
  Academic Secretariat of Civil Engineering (SACivil).

- **Excellence Certificate**   2016
  Best professor of the Department of Transportation Engineering (USP-EESC-STT),
  Academic Secretariat of Civil Engineering (SACivil).

- **ABCR Innovation Salon Award**   2015
  9th Brasilian Congress on Highways and Concessions (CBR&C),
  5th Innovation Salon of the Brasilian Association of Highway Concessionaires (ABCR).

PROFESSIONAL SERVICES

- **Reviewer**: Transportation Research Part E, Sustainability, Case Studies on Transport Policy, Transportes, Sensors, Promet - Traffic & Transportation Journal, Geo-spatial Information Science, Journal of the International Association of Traffic and Safety Sciences (IATSS), Drones, Engineering Applications of Artificial Intelligence (EAAI),
- **Scientific Committee**: Transportation Research Board TRB, IEEE Intelligent Transportation Systems Society (ITSS), National Association for Research and Education in Transportation (ANPET), International Scientific Conference (ZIRP), International Symposium ELMAR,

TECHNICAL SKILLS

- **Programming languages**: C++, R, Python, Julia, Matlab, HTML, CSS, JavaScript
- **Tools**: CAD, OpenCV, TSIS-CORSIM, VISSIM, SUMO, MATSim, QGIS
- **Languages**: Portuguese (native), English (advanced), Spanish (basic)