

## NUNO ANTUNES RIBEIRO

Singapore University of Technology and Design ◇ Engineering Systems and Design  
08 Somapah Road 03-101◇ Building 1-Level 3 ◇ Singapore, 487372

### ACADEMIC EXPERIENCE

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<b>Assistant Professor, Engineering Systems and Design</b> Singapore University of Technology and Design (SUTD)	<i>2019 - Present</i>
<b>Deputy Director, Aviation Studies Institute</b> Singapore University of Technology and Design (SUTD)	<i>2024 - Present</i>

### EDUCATION

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<b>PhD in Transportation Systems</b> , University of Coimbra Portugal	<i>2014 - 2019</i>
Visiting Scholar - Massachusetts Institute of Technology (MIT)	<i>2016</i>
Visiting Scholar - Carnegie Mellon University (CMU)	<i>2017</i>
<b>BSc and MSc in Civil Engineering</b> , University of Coimbra Portugal	<i>2007 - 2013</i>

### TEACHING EXPERIENCE

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<b>Instructor</b> , Singapore University of Technology and Design	
<b>10.022</b> Modelling Uncertainty Undergraduate Course (Term 3); Class Size 89 students Last Student Evaluation 4.7/5.0	<i>2023 - Present</i>
<b>40.015</b> Simulation Modelling and Analysis Undergraduate Course (Term 6); Class Size 50 students Last Student Evaluation 4.5/5.0	<i>2019 - Present</i>
<b>40.321</b> Airport Systems Modelling and Simulation Undergraduate Course (Term 7); Class Size 13 students Last Student Evaluation 4.8/5.0	<i>2020 - Present</i>
<b>40.614</b> Metaheuristic Optimization Graduate Course; Class Size 19 students Last Student Evaluation 4.9/5.0	<i>2022</i>
<b>01.400</b> Capstone Undergraduate Course (Term 7); Supervising 37 students Last Student Evaluation 4.6/5.0	<i>2021</i>
<b>01.017</b> SHARP Honours Session Undergraduate Course (Term 3); Class Size 15 students	<i>2023 - Present</i>
<b>01.020</b> Design Thinking Project III Undergraduate Course (Term 3); Supervising 89 students	<i>2023 - Present</i>

### RESEARCH FUNDING

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<b>Principal Investigator</b> , National Research Foundation Singapore "Game Based Learning in PATCO training", \$1,104,640	<i>2024 - 2026</i>
<b>Principal Investigator</b> , National Research Foundation Singapore "Evaluating CONOPS for FF-ICE R1 in South-East Asia", \$1,362,126	<i>2024 - 2026</i>

<b>Principal Investigator</b> , National Research Foundation Singapore "Optimising Terminal Airspace Operations under varying TBO Scenarios", \$1,373,438	2024 - 2026
<b>Principal Investigator</b> , Civil Aviation Authority of Singapore "Airfield and Airspace Management", \$720,000	2022 - 2024
<b>Co-Principal Investigator</b> , National Research Foundation Singapore "Rapid Evaluation Tools Within the Intelligent Optimisation Platform", \$472,132	2021 - 2024
<b>Principal Investigator</b> , National Research Foundation Singapore "Resilient Airspace Operations for Singapore", \$398,722	2021 - 2023
<b>Principal Investigator</b> , Civil Aviation Authority of Singapore "Airfield Management and Economics", \$520,145	2019 - 2021
<b>Principal Investigator</b> , SUTD Startup Research Grant "Airport Congestion Mitigation", \$100,000	2020 - 2022
<b>Research Assistant</b> , European Regional Development Funds "Airport Slot Allocation Process, Advancing Current Practices and Guidelines"	2018 - 2021
<b>Research Assistant</b> , European Regional Development Funds "Energy and Mobility for Sustainable Regions, New Urban Sustainable Mobility"	2014
<b>Research Consultant</b> , Rch. Centre for Territory Transports and Env. (CITTA) - Valorsul S.A "Study of transportation costs of the Valorsul Solid Waste Management System"	2013

## HONORS AND AWARDS

Winner, IISE Modeling and Simulation Division Teaching Award	2024
Shortlisted for the prestigious ATM Awards 2023 alongside renowned industry entities	2024
Winner, Best Student Presentation (Wayne Ng), INFORMS, Aviation Applications Section	2023
Awarded with STaRs Program Grant, University of Bergamo	2022
Winner, TSL Cross-region Collaborative Grant, INFORMS	2021
Runner-Up, Best Paper Award, Air Transport Research Society (ATRS)	2021
Winner, Best Paper Award, INFORMS, Aviation Applications Section	2020
Winner, Best PhD Dissertation Award, INFORMS, Aviation Applications Section	2019
Winner, Anna Valicek Silver Medal, AGIFORS	2018
Runner-Up, Best Student Presentation, INFORMS, Aviation Applications Section	2017
PhD Scholarship, MIT-Portugal Program	2015 -2019
3% Best Student Award, University of Coimbra	2013

## PUBLICATIONS

- [1] Pouget, L., **Ribeiro, N. A.**, Odoni, A. R., & Antunes, A. P. (2023). How do airlines react to slot displacements? Evidence from a major airport. *Journal of Air Transport Management*, 106, 102300.
- [2] Birolini, S., Jacquillat, A., Schmedeman, P., & **Ribeiro, N. A.** (2023). Passenger-Centric Slot Allocation at Schedule-Coordinated Airports. *Transportation Science*, 57(1), 4-26.
- [3] Jorge, D., **Ribeiro, N. A.** & Antunes A.P. (2021) "Towards a decision-support tool for airport slot allocation: application to Guarulhos (Sao Paulo, Brazil)". *Journal of Air Transport Management*, 93, 102048

- [4] **Ribeiro, N. A.**, Jacquillat, A., & Antunes, A. P. (2019). A Large-Scale Neighborhood Search Approach to Airport Slot Allocation. *Transportation Science*, 53(6), 1772-1797.
- [5] **Ribeiro, N. A.**, Jacquillat, A., Antunes, A. P., & Odoni, A. (2019). Improving slot allocation at Level 3 airports. *Transportation Research Part A: Policy and Practice*, 127, 32-54.
- [6] **Ribeiro, N. A.**, Jacquillat, A., Antunes, A. P., Odoni, A. R., & Pita, J. P. (2018) “An optimization approach for airport slot allocation under IATA guidelines”, *Transportation Research Part B: Methodological*, 112, 132-156

## PREPRINTS

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- [1] Zhang, H., Zhou, C., **Ribeiro, N. A.**, Lee, B. K. & Teng, Y (2024) Data-driven Performance Analytics on Robotized Baggage Handling Systems in Airport Operations, *Journal of Air Transport Management*, Under Review
- [2] Khireldin, A., Zahraei, S. M., & **Ribeiro, N. A.** (2024) Enhancing Runway Incursion Prevention Strategies Using Multi-Actor Multi-Criteria Decision Analysis (MAMCA) Model, *Journal of Air Transport Management*, Under Review
- [3] López-Ramos, F., Benita, F. **Ribeiro, N. A.** (2024). A Novel Decision Support Framework for Multi-Objective Aircraft Routing Problem. *Computers and Operations Research*, Under Review
- [4] Ng W., **Ribeiro, N. A.**, Jorge, D., (2024). An Optimization Approach for Solving the Terminal Airspace Scheduling Problem. *Transportation Research Part C Emerging Policies*, Major Revision
- [5] **Ribeiro, N. A.**, Tay J., Ng W., & Birolini, S. (2023). Delay Predictive Analytics for Airport Capacity Management. *Transportation Research Part C Emerging Policies*, Minor Revision

## PEER-REVIEWED CONFERENCE PUBLICATIONS

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- [1] Suvittawat, N., & **Ribeiro, N. A.** (2024) Aircraft Surface Defect Inspection System Using AI with UAVs. In *Proceedings of the International Conference on Research in Air Transportation (ICRAT)*
- [2] Ng, W., & **Ribeiro, N. A.** (2024) A Modeling Framework for Rapid Assessment of Terminal Airspace Configurations and Planning Scenarios. In *Proceedings of the International Conference on Research in Air Transportation (ICRAT)*
- [3] Jorge, D., **Ribeiro, N. A.** & Antunes A.P. “Towards a decision-support tool for airport slot allocation”. *Proceedings of the TSL Second Triennial Conference*, 2020
- [4] Tralhão, L., Sousa N., **Ribeiro, N. A.**, & Coutinho-Rodrigues, J. (2014) ”Design of bicycling suitability maps for hilly cities”, *Proceedings of the ICE - Municipal Engineer*, 168(2), 96-105
- [5] **Ribeiro, N. A.** N. A, Tralhao, L., Rodrigues, J. C., and Sousa, N. “Building a bicycle suitability map for Coimbra”. In *Proceedings of the Energy for Sustainability Multidisciplinary Conference EfS*, 2013.

## INVITED TALKS

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- Guest Lecture, Air Transport Management Degree Programme, ATM3307 Operations Research course, Singapore Institute of Technology (Singapore, 2024)
- ICRAT 2024 - A Modeling Framework for Rapid Assessment of Terminal Airspace Configurations and Planning Scenarios, (Singapore, 2024)
- Seminar Series, Hong Kong Polytechnic University, Department of Aeronautical and Aviation Engineering, (Hong Kong, 2024)
- Seminar Series, City University of Hong Kong, School of Data Science, (Hong Kong, 2024)

ATRS 2023 - Hub Competition and Demand Modeling in Long-haul Aviation Markets, (Kobe, Japan 2023)

Seminar Series, Delft University of Technology, Air Transport and Operations, Faculty of Aerospace Engineering (Delft, Netherlands 2023)

GARS Research Seminar on “How to make slot allocation work better?”, University of Applied Science Amsterdam (Amsterdam, Netherlands 2023)

Seminar Series, Bergamo University, Department of Management, Information and Production Engineering (Bergamo, Italy 2022)

INFORMS Annual Meeting 2022 - A Modelling Approach to Optimize Slot Limits in Airport Demand Management (Indianapolis, 2022)

INFORMS Annual Meeting 2021 - Optimizing the Declared Capacity at Slot Coordinated Airports (Anaheim, USA /Virtual, 2021)

Seminar Series, The Hong Kong Polytechnic University, Department of Logistics and Maritime Studies (Hong Kong/Virtual 2021)

IFORS 2021 - A Passenger-centric Approach to Airport Slot Allocation (Seoul/Virtual 2021)

ATRS 2021 - Passenger-centric Slot Allocation at Schedule-coordinated Airports (Sydney/Virtual, 2021)

IORA 2021 - Predictive and Prescriptive Analytics to Airport Slot Allocation (Singapore, 2021)

EURO 2021 - Passenger-centric Slot Allocation at Schedule-coordinated Airports, (Athens/Online, 2021)

CANSO Webinar, ATM R&D series - Understanding Convective Weather Events and Their Impact on Air Traffic Management, (Online, 2020)

2020 INFORMS Annual Meeting - A Passenger-Centric Approach to Airport Slot Allocation, (Online, 2020)

2019 INFORMS Annual Meeting - Slot Allocation: Algorithms and Implementation at Guarulhos Airport, (Seattle, USA, 2019)

2018 INFORMS Annual Meeting - A Large Neighborhood Search Approach to Airport Slot Allocation, (Phoenix, USA, 2018)

AGIFORS 58th Annual Symposium - An Optimization Approach for Airport Slot Allocation Under IATA Guidelines, (Tokyo, Japan, 2018)

OR60 Annual Conference - Optimizing Slot Allocation at Level 3 airports, (Lancaster, UK, 2018)

2017 INFORMS Annual Meeting - An Optimization Approach for Airport Slot Allocation Under IATA Guidelines, (Houston, USA, 2017)

21st ATRS World Conference - An Optimization Approach for Airport Slot Allocation Under IATA Guidelines, (Antwerp, Belgium, 2017)

2016 INFORMS Annual Meeting - A Model for Airport Schedule Coordination based on the IATA Guidelines, (Tennessee, USA, 2016)

hEART 5th Symposium - An Airport Slot Allocation Model Compliant with IATA Guidelines, (Delft, Netherlands, 2016)

## **STUDENTS SUPERVISION**

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PhD supervisor - Wayne Ng, Darryl Teo, Jetanat Datephanyawat, Nuchanon Suvittawat, Marcus Koh	<i>2021-Present</i>
MEng supervisor - Xie Peining , Jordan Tay	<i>2021-2024</i>
SHARP supervisor - Vanessa Chia Yun Yao, Tran Nguyen Bao Long, Liu Renhang, Umali Mike Guil Anonuevo, Xie Jiacheng	<i>2020-2022</i>
Internship supervisor, Mark Feng Zhengqing, Richard Huang	<i>2020-2021</i>
UROP supervisor - more than 15 students	<i>2020-2024</i>

## UNIVERSITY SERVICES

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Deputy Director Aviation Studies Institute	<i>2024 - Present</i>
Aviation Systems Focus Track Lead	<i>2019 - Present</i>
Conducting Faculty Interviews	<i>2019 - Present</i>
Conducting Admissions Interviews	<i>2020 - Present</i>
Participation in SUTD Outreach Activities	<i>2019 - Present</i>
Developed New SHARP Honours Session Module,	<i>2023</i>
Developed New Graduate Course: 40.614 Metaheuristic Optimization,	<i>2022</i>
Developed New Undergraduate Course: 40.321 Airport Systems Modelling and Simulation,	<i>2019</i>
PhD thesis committee member: Ng Jia Yi, Vu Trung Dung, Meijing Zhang, Christian Kurniawan,	<i>2020 - Present</i>
M.Sc. independent reviewer: Pei Jinling, Zeng Xinyu, Teresa Liew Si Min, Justin Chee	<i>2021 - Present</i>
Capstone project scoping committee member	<i>2020 - 2022</i>
Led the execution of a Memorandum of Understanding (MOU) between the Aviation Studies Institute (ASI) and Bergamo University.	<i>2022</i>
Conducting Transfer Credit Approvals	<i>2019 - Present</i>

## EXTERNAL SERVICES

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Treasurer/Secretary (Elected) – Aviation Applications Sections, INFORMS	<i>2023 - Present</i>
Early Career Editorial Board Member, Transp. Resch. Part C: Emerging Technologies	<i>2021 - Present</i>
Communication Chair – Aviation Applications Sections, INFORMS	<i>2021 - 2022</i>
Committee Chair Best Paper Award – Aviation Applications Sections, INFORMS	<i>2020 - 2021</i>
Member of the Evaluation Committee for the Anna Valicek Award, AGIFORS	<i>2021</i>
Member of the Evaluation Committee for the Ken Wang Award, AGIFORS	<i>2021</i>
Cluster Chair – Aviation Applications Sections, INFORMS	<i>2019 - 2020</i>
Session Chair – INFORMS 2019, INFORMS 2020, IFORS 2021	<i>2019 - 2021</i>
Memberships: Institute for Operations Research and the Management Sciences (INFORMS), Transportation Science and Logistics (TSL), Aviation Applications Section of INFORMS (AAS), Civil Air Navigation Services Organization (CANSO), Singapore Institute of Aerospace Engineers (SIAE), Research Centre for Territory Transports and Environment (CITTA)	

Reviewer for major academic journals: Operations Research, European Journal of Operations Research; Journal of Aerospace Technology and Management; Mathematical Problems in Engineering; Transportation Research Part B: Methodological; Transportation Research Part C: Emerging Technologies; Transportation Research Part D: Transport and Environment; Transportation Research Part E: Logistics and Transportation Review, Transportation Science *2018 - Present*

## **OTHERS**

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Languages: Portuguese (Native); English (Advanced); Spanish (Intermediate); French (Basic)

Computer Skills: Python, R, Matlab, GAMS; AMPL; MOSEL; Javascript; CAST-Aviation; Simio; ArcGIS; SPSS; AutoCAD

Extracurricular Activities: Traveling, Football, Piano, History