

Thiago Serra

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RESEARCH INTERESTS

Theory and applications of artificial intelligence, machine learning, and mathematical optimization.

EDUCATION

Ph.D.	<i>Operations Research</i>	Carnegie Mellon University	2018	Advisor: J. Hooker
	♦ Gerald L. Thompson Dissertation Award in Management Sciences			
M.S.	<i>Operations Research</i>	Carnegie Mellon University	2015	
M.S.	<i>Computer Science</i>	University of Sao Paulo	2012	Advisor: Y. Wakabayashi
B.S.	<i>Computer Engineering</i>	University of Campinas	2008	Advisor: A. V. Moura
	♦ SBC Outstanding Student Award, IE Award, CREA Honorable Mention			
Certificate of Studies Abroad	IST, University of Lisbon		2007	

ACADEMIC APPOINTMENT

Bucknell University, Lewisburg, PA
Assistant Professor of Analytics and Operations Management August 2019 – Present

INDUSTRY, CONSULTING, AND VISITING POSITIONS

Mitsubishi Electric Research Labs , Cambridge, MA	
<i>Visiting Research Scientist</i>	June 2018 – June 2019
<i>Summer Intern</i>	May 2017 – August 2017
<i>Summer Intern</i>	May 2016 – August 2016
Petrobras , Sao Paulo, SP, Brazil	
<i>Operations Research Analyst</i>	June 2009 – June 2013
Neolog , Sao Paulo, SP, Brazil	
<i>Consultant</i>	June 2008 – June 2009

PUBLICATIONS

Currently Under Review

1. T. Serra, T. Huang, A. Raghunathan, and D. Bergman:
Template-based Minor Embedding for Adiabatic Quantum Optimization.
Submitted to *INFORMS Journal on Computing*; minor review in 10/2020.
2. A. Raghunathan, D. Bergman, J. Hooker, T. Serra, and S. Kobori:
Seamless Multimodal Transportation Scheduling.
Submitted to *INFORMS Journal on Computing*; minor review in 09/2020.

Refereed Journal Papers

3. E. Balas and T. Serra:
When Lift-and-Project Cuts are Different.
To appear in *INFORMS Journal on Computing*. Accepted in 10/2019.
4. T. Serra:
Reformulating the Disjunctive Cut Generating Linear Program.
Annals of Operations Research 295:363–384, 2020.
♦ **INFORMS 2016 Annual Meeting Interactive Presentation Award First Place Winner**
5. T. Serra and R. J. O’Neil:
Seamless Benchmarking of Mathematical Optimization Problems and Metadata Extensions.
SN Operations Research Forum 1:24, 2020.
6. T. Serra and J. Hooker:
Compact Representation of Near-Optimal Integer Programming Solutions.
Mathematical Programming 182:199–232, 2020.

Refereed International Conference Papers

7. T. Serra, A. Kumar, and S. Ramalingam:
Lossless Compression of Deep Neural Networks.
In *Proceedings of the 17th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR 2020)*.
Acceptance rate: 50.0%
♦ **Third Place at the Poster Competition of the LatinX in AI Workshop at ICML 2020**
8. T. Serra:
Enumerative Branching with Less Repetition.
In *Proceedings of the 17th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR 2020)*.
Acceptance rate: 50.0%
9. T. Serra and S. Ramalingam:
Empirical Bounds on Linear Regions of Deep Rectifier Networks.
In *Proceedings of the 34th AAAI Conference on Artificial Intelligence (AAAI 2020)*.
Acceptance rate: 20.6%

10. T. Serra, A. Raghunathan, D. Bergman, J. Hooker, and S. Kobori:
Last-Mile Scheduling Under Uncertainty.
In *Proceedings of the 16th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR 2019)*.
Acceptance rate: 44.8%
11. T. Serra, C. Tjandraatmadja, and S. Ramalingam:
Bounding and Counting Linear Regions of Deep Neural Networks.
In *Proceedings of the 35th International Conference on Machine Learning (ICML 2018)*.
Acceptance rate: 25.1%
♦ **Princeton Day of Optimization Best Poster Award: Optimization and Machine Learning**
12. A. Raghunathan, D. Bergman, J. Hooker, T. Serra, and S. Kobori:
The Integrated Last-Mile Transportation Problem (ILMTP).
In *Proceedings of the 28th International Conference on Automated Planning and Scheduling (ICAPS 2018)*.
Acceptance rate: 33.0%
13. T. Serra, G. Nishioka, and F. Marcellino:
The Offshore Resources Scheduling Problem: Detailing a Constraint Programming Approach.
In *Proceedings of the 18th International Conference on Principles and Practice of Constraint Programming (CP 2012)*.
Acceptance rate: 36.6%

Patents Filed

14. T. Serra, A. Raghunathan, and D. Bergman:
System and Method for Scheduling Multiple Modes of Transport with Incomplete Information
U.S. Patent Application 16/284,229, filed February 2019 (pending)
15. A. Raghunathan, D. Bergman, and T. Serra:
Systems and Methods for Joint Control of Multi-Modal Transportation Networks
U.S. Patent Application 15/785,540, filed October 2017 (pending)

AWARDS AND HONORS

2020 Third Place at the Poster Competition of the LatinX in AI Workshop at ICML 2020
 2018 Carnegie Mellon Univ. Gerald L. Thompson Doctoral Dissertation Award in Management Science
 2018 Princeton Day of Optimization Best Poster Award: Optimization and Machine Learning
 2016 INFORMS Judith Liebman Award
 2016 INFORMS Annual Meeting Interactive Presentation Award First Place Winner
 2011 Brazilian Symposium on Operations Research Best Paper Finalist

Undergraduate

2009 Brazilian Computing Society (SBC) Outstanding Student Award
 2009 Sao Paulo Institute of Engineering (IE) Award

2009 Sao Paulo Reg. Board of Engineering, Architecture, and Agronomy (CREA) Honorable Mention
2007 ACM International Collegiate Programming Contest South America Bronze Medal
2006 Portuguese National Programming Contest (MIUP) Third Place
2005 ACM International Collegiate Programming Contest South America Bronze Medal
2004 ACM International Collegiate Programming Contest South America Bronze Medal
2003 Brazilian Olympiad in Informatics Gold Medal

FELLOWSHIPS, GRANTS, AND SCHOLARSHIPS

2018 Carnegie Mellon Gerald L. Thompson Doctoral Dissertation Award
2018 MIP Workshop Travel Support
2018 Carnegie Mellon Graduate Student Conference Funding
2017 MIP Workshop Travel Support
2017 Carnegie Mellon Graduate Student Conference Funding
2016 INFORMS Annual Meeting Interactive Presentation Award
2015 Tepper School of Business Dean's Fund
2013–2017 William Larimer Mellon Fellowship
2006–2007 Luso-American Development Foundation Scholarship
2004–2005 Sao Paulo Res. Fndn. Undergraduate Res. Grant
2003–2004 Sao Paulo Res. Fndn. Innovative Res. in Small Business Grant

INVITED PRESENTATIONS

May 2021 MIP 2021 workshop
Mar 2021 Texas Tech University, Industrial, Manufacturing & Systems Engineering
Feb 2021 UCLA, Institute for Pure and Applied Mathematics

Past

Nov 2020 University of Nebraska Omaha, Department of Mathematics
Nov 2020 Brazilian Symposium on Operations Research (Tutorial)
Oct 2020 The University of Alabama, The Culverhouse College of Business
Feb 2020 Google, New York City office
Aug 2019 Carnegie Mellon University, YinzOR 2019 (Featured speaker)
Jul 2019 University of Campinas, Institute of Computing
May 2019 UCLA, Institute for Pure and Applied Mathematics
Apr 2019 Brown University, Computer Science Department
Mar 2019 University of Massachusetts Amherst, INFORMS Student Chapter
Dec 2018 Rensselaer Polytechnic Institute, Industrial and Systems Engineering

Dec 2018	Bucknell University, Freeman College of Management
Oct 2018	The University of Utah, School of Computing
Oct 2018	Colby College, Mathematics and Statistics Department
Jun 2018	Mitsubishi Electric Research Laboratories
Mar 2018	Carnegie Mellon University, Process Systems Engineering
Feb 2018	Brookhaven National Laboratory, Computational Science Initiative
Jun 2017	Northeastern University, INFORMS Student Chapter
May 2013	University of Campinas, IEEE Computational Intelligence Society Student Chapter

TEACHING EXPERIENCE

Bucknell University

ANOP 203: Intro. to Programming for Business Analytics	Undergraduate	Instructor
Fall 2020: 19 students		
Spring 2020: 22 students		
Fall 2019: 21 students		
ANOP 102: Spreadsheet Modeling and Data Analysis	Undergraduate	Instructor
Fall 2020: 20 students		
MGMT 102: Quantitative Reasoning for Managers	Undergraduate	Instructor
Spring 2020: 23 students		
Fall 2019: 21 students		

Carnegie Mellon University

70460: Mathematical Models for Consulting	Undergraduate	Instructor
Fall 2016: 25 students		
45751: Optimization	MBA	Recitation Leader
Spring 2017		
Spring 2016		
06805: Disjunctive Programming	PhD	Teaching Assistant
Spring 2016		
45751: Optimization	MBA	Teaching Assistant
Fall 2015		
45850: Applications of Operations Research	MBA	Teaching Assistant
Fall 2015		

University of Campinas

MC 326: File Structures	Undergraduate	Teaching Assistant
Fall 2006		

TEACHING-RELATED TRAINING

<i>Teaching Circles</i>	Teaching and Learning Center, Bucknell University	2020
<i>Course Design and Pedagogy Workshop</i>	Teaching and Learning Center, Bucknell University	2019
<i>Future Faculty Program</i>	Eberly Center, Carnegie Mellon University	2014–17
<i>Teaching Effectiveness Colloquium</i>	INFORMS	2017
<i>Teaching Effectiveness Colloquium</i>	INFORMS	2016
<i>Acting for Non-Majors</i>	School of Drama, Carnegie Mellon University	2015
<i>Language and Culture for Teaching</i>	ICC, Carnegie Mellon University	2013

PROFESSIONAL SERVICE

Conferences

- Outreach Chair, Annual Conference on Innovative Applications of Artificial Intelligence (IAAI) 2021
- Track Chair, INFORMS Optimization Society Conference 2020
- Program Committee, AAAI Conference on Artificial Intelligence (AAAI) 2020, 2021
- Program Committee, Special Track on Automatic Solver Configuration, Learning and Intelligent Optimization Conference (LION) 2020
- Academic Job Market Panel, INFORMS Annual Meeting 2019
- Twitter Curator, International Symposium on Mathematical Programming (ISMP) 2015
- Blogger, INFORMS Annual Meeting 2012 – Present

Awards

- Committee Chair, INFORMS Undergraduate Operations Research Prize, 2020
- Committee Member, INFORMS Undergraduate Operations Research Prize, 2018 – 2019

Professional Organizations

- Member, INFORMS Education Strategy Committee, 2017 – Present
- Consulting Board Member, INFORMS Student Chapter at Carnegie Mellon, 2017 – 2018
- President, INFORMS Student Chapter at Carnegie Mellon 2015 – 2017
 - ♦ 2017 INFORMS Student Chapter Award: Magna Cum Laude
 - ♦ 2016 INFORMS Student Chapter Award: Suma Cum Laude
 - ♦ 2016 INFORMS Judith Liebman Award
- Co-Founder and Secretary, INFORMS Student Chapter at Carnegie Mellon, 2014 – 2015

Journal Peer Review

- Annals of Operations Research
- Constraints
- IEEE Transactions on Neural Networks and Learning Systems

- International Transactions in Operational Research
- Journal of Global Optimization
- Mathematical Programming
- Transportation Research B: Methodological

Conference Peer Review

- AAAI Conference on Artificial Intelligence (AAAI) 2017, 2020
- American Control Conference (ACC) 2020, 2021
- Conference on Integer Programming and Combinatorial Optimization (IPCO) 2021
- International Conference on Principles and Practice of Constraint Programming (CP) 2016, 2017
- International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR) 2017, 2018, 2019
- Learning and Intelligent Optimization Conference (LION) 2020

BUCKNELL SERVICE

Committees

- Search Committee Member, Sidney L. Miller Professor of Management Position, 2020 – Present
- College Representative, Undergraduate Research Advisory Committee (URAC), 2020 – Present
- Department Representative, Library & IT Department, 2019 – Present

REFERENCES

Available upon request.