

complex and sustainable urban networks

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current position

Associate Professor, Research Associate Professor
and **Director** of the **Complex and Sustainable Urban Networks (CSUN) Lab**

Civil and Materials Engineering
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web presence

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- [Research Gate](#)
- [LinkedIn](#)
- [Twitter](#)



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01 education & skills

education

Ph.D., University of Toronto (Canada) 2010
Civil Engineering
Thesis title: [The Properties and Effects of Metro Network Designs](#)

D.E.S.O., Ecole Centrale of Lyon (France) 2006
Industrial Engineering: Innovation, Development
Exchange under Erasmus program

M.Eng., Imperial College London (UK) 2006
Mechanical Engineering
1st class honours

languages

French: native
English: fluent
Spanish: conversational

IT skills

Python (including scikit-learn, neupy, keras, theano, pandas, igraph, numpy, scipy, matplotlib libraries), HTML, JavaScript, React Native, XML, C++, LaTeX, ArcGIS, QIGS, AutoCAD, STATA, EMME/2, Adobe (Photoshop, Illustrator, InDesign, Dreamweaver), GIMP, Labview, Apple, Microsoft Windows, Linux, MS Office (Word, Excel, PowerPoint, Publisher)

02 professional experience

University of Illinois at Chicago – Chicago (United States) **aug 2017 – present**
Department of Civil and Materials Engineering
Institute for Environmental Science and Policy (joint appointment)
Department of Computer Science (courtesy appointment)
Associate Professor and Research Associate Professor
Director of the Complex and Sustainable Urban Networks (CSUN) Lab

University of Transport Technology – Hanoi (Vietnam) **june 2019 – nov 2019**
Faculty of Civil Engineering
Visiting Professor

University of Illinois at Chicago – Chicago (United States) **aug 2012 – aug 2017**
Department of Civil and Materials Engineering
Institute for Environmental Science and Policy (joint appointment)
Assistant Professor and Research Assistant Professor
Director of the Complex and Sustainable Urban Networks (CSUN) Lab

Massachusetts Institute of Technology – Singapore (Singapore) **aug 2011 – jul 2012**
Singapore-MIT Alliance for Research and Technology
Future of Urban Mobility
Visiting Research Fellow

University of Toronto – Toronto (Canada) **aug – dec 2010**
Department of Civil Engineering
Cities Centre
Post-Doctoral Researcher

University of Toronto – Toronto (Canada) **sep 2006 – jul 2010**
Department of Civil Engineering
Research Assistant and Teaching Assistant

Accenture Paris – Paris (France) **apr – jul 2006**
Business Analyst

03 publications

refereed publications

1. Boria, E., Badhrudeen, M., Fonteix, G., **Derrible, S.**, Siciliano, M., 2020 "A Protocol to Convert Infrastructure Data from Computer Aided Design (CAD) to Geographic Information Systems (GIS)", under review
2. Movahedi, A., & **Derrible, S.**, 2020 "Interrelated Patterns of Electricity, Gas, and Water Consumption in Large-Scale Buildings" under review
3. Truong, T.M.T, Ly, H.-B., Le, T.-T., **Derrible, S.**, Lee, D., Pham, B.T., 2020 "Analyzing Travel Behaviors in Hanoi, Vietnam, Using Support Vector Machine", under review
4. Badhrudeen, M., **Derrible, S.**, & Verma, T., 2020 "A Geometric Classification of World Urban Road Networks", under review
5. Lee, D., **Derrible, S.**, Peirera, F., & Rodrigues, F. 2020 "Modeling Discrete Choice Behavior in Probabilistic Graphical Model Framework", under review
6. Haas, N., O'Connor, B., Vitousek, S., & **Derrible, S.**, 2020 "Catchment Water Mass Balance of Porous Concrete Parking Lot", under review
7. **Derrible, S.**, Truong, T.T.M., Pham, H.T., Nguyen, Q.H., 2020 "The Future of Water Distribution: Learning from Hanoi (Vietnam)", under review
8. Parsa, A.B., Chauhan, R.S., Taghipour, H., **Derrible, S.**, & Mohammadian, A., 2020 "Applying Deep Learning to Detect Traffic Accidents in Real Time Using Spatiotemporal Sequential Data", under review
9. Asif, K., Zhang, L., **Derrible, S.**, Indacochea, J.E., Ozevin, D., & Ziebart, B., 2020 "Machine learning model to predict welding quality using air-coupled acoustic emission and weld inputs", *Journal of Intelligent Manufacturing*, in press
10. Derrible, S., Chester, M., & Guikema, S., 2020 "[Infrastructure Resilience to Climate Change](#)", *Journal of Infrastructure Systems*, 26(2): 02020001
11. Barua, L., Zou, B., Noruzoliaee, M., & **Derrible, S.**, 2020 "[A Gradient Boosting Machine Approach to Predicting Airport Runway and Taxiway Pavement Conditions](#)", *International Journal of Pavement Engineering*, DOI: 10.1080/10298436.2020.1714616
12. Mulrow, J., & **Derrible, S.**, 2020 "[Is Slower More Sustainable? The Role of Speed in Achieving Environmental Goals](#)", *Sustainable Cities and Society*, 57:102030
13. Dayeen, F.R., Sharma, A., & **Derrible, S.**, 2020 "[A Text Mining Analysis of the Climate Change Literature in Industrial Ecology](#)", *Journal of Industrial Ecology*, 1–9. <https://doi.org/10.1111/jiec.12998>
14. Parsa, A.B., Movahedi, A., Taghipour, H., **Derrible, S.**, & Mohammadian, A., 2020 "[Toward Safer Highways, Application of XGBoost and SHAP for Real-Time Accident Detection and Feature Analysis](#)", *Accident Analysis and Prevention*, 136:105405
15. Ly, H.-B., Le, L.M., Phi, L.V., Phan, V.-H., Tran, V.Q., Pham, B.T., Le, T.-T., & **Derrible, S.**, 2019 "[Development of an AI Model to Measure Traffic Air Pollution from Multisensor and Weather Data](#)", *Sensors*, 19:4941.
16. Lee, D., & **Derrible, S.**, 2019 "[Predicting Residential Water Consumption: Modeling Techniques and Data Perspectives](#)", *Journal of Water Resources Planning and Management*, 146(1): 04019067
17. Mulrow, J., **Derrible, S.**, & Samaras, C., 2019 "[Sociotechnical convex hulls and the evolution of transportation activity: A method and application to US travel survey data](#)", *Technological Forecasting and Social Change*, 149:119789
18. Lu, Z., Broesicke, O.A., Chang, M.E., Yan, J., Xu, M., **Derrible, S.**, Mihelcic, J.R., Schwegler, B., & Crittenden, J.C., 2019 "[Seven Approaches to Manage Complex Coupled Human and Natural Systems: A Sustainability Toolbox](#)", *Environmental*

Science and Technology, DOI:
10.1021/acs.est.9b01982

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2672(49):101-112

[Plant—An experiment in urban food sustainability](#), *Environmental Progress & Sustainable Energy*, 37(1):82-90

19. Parsa, A.B., Taghipour, H., **Derrible, S.**, & Mohammadian, A., 2019 "[Real-Time Accident Detection: Coping with Imbalanced Data](#)", *Accident Analysis and Prevention*, 129:202-210
20. Lee, D., Mulrow, J., Haboucha, C.J., **Derrible, S.**, & Shiftan, Y., 2019 "[Attitudes on Autonomous Vehicle Adoption using Interpretable Gradient Boosting Machine](#)", *Transportation Research Record*, 10.1177/0361198119857953
21. Trabucco, J., Lee, D., **Derrible, S.**, & Marai, G.E., 2019 "[Visual Analysis of a Smart City's Energy Consumption](#)", *Multimodal Technologies and Interaction*, 3(2):30, 10.3390/mti3020030
22. Mulrow, J., Machaj, K., Deanes, J., & **Derrible, S.**, 2019 "[The state of carbon footprint calculators: An evaluation of calculator design and user interaction features](#)", *Sustainable Production and Consumption*, 18:33-40
23. **Derrible, S.**, 2018 "[An approach to designing sustainable urban infrastructure](#)", *MRS Energy and Sustainability*, 5:E15
24. Lee, D., **Derrible, S.**, & Pereira, F., 2018 "[Comparison of Four Types of Artificial Neural Networks and Multinomial Logit Model for Travel Mode Choice Modeling](#)",
25. Wisetjindawat, W., **Derrible, S.**, & Kermanshah, A., 2018 "[Modeling the Effectiveness of Infrastructure and Travel Demand Management Measures to Improve Traffic Congestion During Typhoons](#)", *Transportation Research Record*, 2672(1):43-53
26. Ahmad, N., & **Derrible, S.**, 2018 "[An information theory based robustness analysis of energy mix in US States](#)", *Energy Policy*, 120:167-174
27. Ahmad, N., & **Derrible, S.**, Managi, S., 2018 "[A Network-Based Frequency Approach to Representing the Inclusive Wealth of World Countries](#)", *Journal of Environmental Management*, 218:348-354
28. Chancé, E., **Derrible, S.**, & Ashton, W., 2018 "[The need to adapt emerging sustainability audits to atypical business models](#)", *Clean Technologies and Environmental Policy*, 20(5): 1113-1118
29. Golshani, N., Shabanpour, R., Mahmoudifard, S., **Derrible, S.**, & Mohammadian, A., 2018 "[Modeling Travel Mode and Timing Decisions: Comparison of Artificial Neural Networks and Copula-based Joint Model](#)", *Travel Behaviour and Society*, 10:21-32
30. Chancé, E., Ashton, W., Mulrow, J., Norberto, J., **Derrible, S.**, & Guilbert, S., 2018 "[The](#)
31. Kermanshah, A., **Derrible, S.**, & Berkelhammer, M., 2017, "[Using Climate Models to Estimate Urban Vulnerability to Flash Floods](#)", *Journal of Applied Meteorology and Climatology*, 56(9):2637-2650
32. Akbarzadeh, M., Memarmontazerin, S., **Derrible, S.**, & Reihani, S., 2017, "[The Role of Travel Demand and Network Centrality on the Connectivity and Resilience of an Urban Street System](#)", *Transportation*, DOI: 10.1007/s11116-017-9814-y
33. Wisetjindawat, W., Kermanshah, A., **Derrible, S.**, & Fujita, M., 2017 "[Stochastic Modeling of Road System Performance to Multi-Hazard Events: Flash Floods and Earthquakes](#)", *Journal of Infrastructure Systems*, 23(4):04017031
34. Tennant, A., Ahmad, S., & **Derrible, S.**, 2017 "[Complexity Analysis in the Sport of Boxing](#)", *Journal of Complex Networks*, cnx010, DOI: <https://doi.org/10.1093/comnet/cnx010>
35. Mulrow, J., **Derrible, S.**, Ashton, W., & Chopra, S., 2017, "[Industrial Symbiosis at the Facility Scale](#)", *Journal of Industrial Ecology*, DOI: 10.1111/jiec.12592
36. Shabanpour, R., Golshani, N., **Derrible, S.**, Mohammadian, A., & Miralinaghi, M., 2017 "[Joint Discrete-Continuous Model of Travel](#)

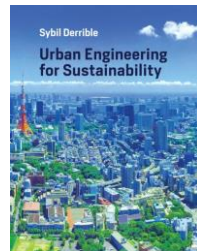
- [Mode and Departure Time Choices](#)", *Transportation Research Record*, 2669:41-51
37. Peiravian, F., & **Derrible, S.**, 2017 "[Multi-Dimensional Geometric Complexity in Urban Transportation Systems](#)", *Journal of Transport and Land Use*, 10(1):589-625
38. Ahmad, N., **Derrible, S.**, & Cabezas, H., 2017 "[Using Fisher information to assess stability in the performance of public transportation systems](#)", *Royal Society Open Science*, 4: 160920
39. Wang, X., Koc, Y., **Derrible, S.**, Ahmad, N., Pino, W., & Kooij, R., 2017 "[Multi-Criteria Robustness Analysis of Metro Networks](#)", *Physica A: Statistical Mechanics and its Applications*, 474:19-31
40. **Derrible, S.**, 2017 "[Complexity in Future Cities: The Rise of Networked Infrastructure](#)", *International Journal of Urban Sciences*, 21(sup1): 68-86
41. Kermanshah, A., & **Derrible, S.**, 2017 "[Robustness of Road Systems to Extreme Flooding: Using Elements of GIS, Travel Demand, and Network Science](#)", *Natural Hazards*, 86(1):151-164
42. **Derrible, S.**, 2017 "[Urban Infrastructure is not a Tree: Integrating and Decentralizing Urban Infrastructure Systems](#)", *Environment and Planning B: Urban Analytics and City Science*, 44 (3):553-569
43. Ahmad, N., **Derrible, S.**, Eason, T., & Cabezas, H., 2016 "[Using Fisher Information to Track Stability in Multivariate Systems](#)", *Royal Society Open Science*, 3:160582
44. Amini, B., Peiravian, F., Mojarradi, M. & **Derrible, S.** 2016 "[Comparative Traffic Performance Analysis of Urban Transportation Network Structures](#)", *Transportation Research Record*, 2594:159-16
45. Karduni, A., Kermanshah, A., & **Derrible, S.**, 2016 "[A protocol to convert spatial polyline data to network formats and applications to world urban road networks](#)", *Scientific Data*, 3:160046
46. Kermanshah, A., & **Derrible, S.**, 2016 "[A Geographical and Multi-Criteria Vulnerability Assessment of Transportation Networks Against Extreme Earthquakes](#)", *Reliability Engineering & System Safety*, 153:39-49
47. Mohareb, E., **Derrible, S.**, & Peiravian, F., 2016 "[Intersections of Jane Jacobs' Conditions for Diversity and Low-Carbon Urban Systems: Global Look at Four Cities](#)", *ASCE Journal of Urban Planning and Development*, 142(2):05015004
48. **Derrible, S.**, & Ahmad, N., 2015 "[Network-Based and Binless Frequency Analyses](#)", *PLoS ONE*, 10(11): e0142108
49. **Derrible, S.**, & Reeder, M., 2015 "[The Cost of Over-Cooling Commercial Buildings in the United States](#)", *Energy and Buildings*, 108:304-306
50. Dijkema, G., Xu, M., **Derrible, S.**, & Lifset, R., 2015, "[Complexity in Industrial Ecology: Models, Analysis, and Actions](#)", *Journal of Industrial Ecology*, 19(2):189-194
51. Ahmad, N. & **Derrible, S.**, 2015 "[Evolution of Water Consumption in the USA: A Network Approach](#)", *Journal of Industrial Ecology*, 19(2):321-330
52. Cottrill, C., & **Derrible, S.**, 2015 "[Leveraging Big Data for the Development of Transport Sustainability Indicators](#)", *Journal of Urban Technology*, 22(1):45-64
53. Peiravian, F. & **Derrible, S.**, Ijaz, F., 2014 "[Development and Application of the Pedestrian Environment Index \(PEI\)](#)", *Journal of Transport Geography*, 39:73-84
54. **Derrible, S.**, 2012 "[Reviewing and Assessing the Toronto Metro System](#)", *Canadian Journal of Civil Engineering*, 39(2):154-162
55. **Derrible, S.**, 2012 "[Network Centrality of Metro Systems](#)", *PLoS ONE*, 7(7):e40575
56. **Derrible, S.** & Kennedy, C., 2011 "[Applications of Graph Theory and Network Science to Transit Network Design](#)", *Transport Reviews: A Transnational Transdisciplinary Journal*, 31(4):495-519
57. **Derrible, S.**, Saneinejad, S., Sugar, L. & Kennedy, C., 2010, "[Macroscopic greenhouse-gases emissions model of urban transportation for municipalities](#)",

Transportation Research Record, 2191:174-181

58. **Derrible, S.** & Kennedy, C., 2010, "[Evaluating, Comparing, and Improving Metro Networks: an application to the Toronto proposed plans](#)", *Transportation Research Record*, 2146:43-51
59. **Derrible, S.** & Kennedy, C., 2010 "[The Complexity and Robustness of Metro Networks](#)", *Physica A: Statistical Mechanics and its Applications*, 389(17):3678-3691
60. **Derrible, S.** & Kennedy, C., 2010 "[Characterizing Metro Networks: State, Form, and Structure](#)", *Transportation*, 37(2):275-297
61. **Derrible, S.** & Kennedy, C., 2009 "[Network Analysis of Subway Systems in the World using Updated Graph Theory](#)", *Transportation Research Record*, 2112:17-25

books

1. **Derrible, S.**, 2019, [Urban Engineering for Sustainability](#), MIT Press, Cambridge, MA, 656 pages.



2. Ha-Minh, C., Dao, D.V., Benboudjema, F., **Derrible, S.**, Khoa, H.D.V., Tang, A.M., (Eds) 2019, [CIGOS 2019 Innovation for Sustainable Infrastructure](#), Springer, Singapore, 1254 pages.

3. **Derrible, S.**, 2011 [Metro Network Designs: Characteristics, Complexity, and impact on Ridership](#), Lambert Publishing, Saarbrücken, Germany, 224 pages.

book chapters

4. **Derrible, S.**, Cheah, L., Arora, M., & Yeow, L.W., 2020 "Urban Metabolism", under review
5. Kapousouz, E., Seyrfar, A., & **Derrible, S.**, 2020 "A Clustering Analysis of Energy and Water Consumption in U.S. states from 1985 to 2015", under review
6. Badhrudeen, M., Naranjo, N., Movahedi, A., & **Derrible, S.**, 2019 "[Machine learning based tool for identifying errors in CAD to GIS converted data](#)", in [CIGOS 2019 Innovation for Sustainable Infrastructure](#), Springer, Singapore.
7. Mohareb, E., Bristow, D., & **Derrible, S.**, 2016 "Greenhouse Gas Mitigation in Developed World Cities", in [Handbook of Urbanization and Global Environmental Change](#). Edited by Seto, K., Solecki, W., & Griffith, C., pp.377-405, London: Routledge.
8. **Derrible, S.**, 2013 "[Metros as Biological Systems: Complexity in Small Real-life Networks](#)", in [Advances in Network Complexity](#). Edited by Dehmer, M., Mowshowitz, A. & Emmert-Streib, F., pp.259-285, Wiley-VCH Verlag GmbH & Co. KGaA

9. **Derrible, S.**, Saneinejad, S. & Kennedy, C., 2009 "Chapter 4: Transportation and Land-Use", in [Getting to Carbon Neutral: A Guide for Canadian Municipalities](#). Edited by Kennedy, C., produced for the Toronto and Region Conservation Authority
10. Kennedy, C., Bristow, D., **Derrible, S.**, Mohareb, E., Saneinejad, S., Stupka, R., Sugar, L. & Zizzo, R., 2009 "Chapter 7: Comparison of Strategies", in [Getting to Carbon Neutral: A Guide for Canadian Municipalities](#). Edited by Kennedy, C., produced for the Toronto and Region Conservation Authority
11. Kennedy, C., Bristow, D., **Derrible, S.**, Mohareb, E., Saneinejad, S., Stupka, R., Sugar, L., Zizzo, R., & McIntyre, B., 2010 "[Getting to Carbon Neutral: A Review of Best Practices in Infrastructure Strategy](#)", in [Energy efficient cities: Assessment tools and benchmarking practices](#). Edited by Ranjan K. Bose, pp.165-184. Washington, DC: World Bank

conference proceedings

1. Parsa, A.B., Chauhan, R.S., Taghipour, H., **Derrible, S.**, & Mohammadian, A., 2020 "Applying Deep Learning to Detect Traffic Accidents in Real Time Using Spatiotemporal Sequential Data", *TRB 99th Annual Meeting*, Transportation Research Board, January 12-16, Washington DC, United States

2. Lee, D., Mulrow, J., Haboucha, C.J., **Derrible, S.**, & Shiftan, Y., 2019, "Attitudes on Autonomous Vehicle Adoption using Interpretable Gradient Boosting Machine", *TRB 98th Annual Meeting*, Transportation Research Board, January 13-17, Washington DC, United States
3. Barua, L., Zou, B., Noruzoliaee, M., & **Derrible, S.**, 2019, "Predicting Airport Runway and Taxiway Pavement Conditions: A Gradient Boosting Machine Approach", *TRB 98th Annual Meeting*, Transportation Research Board, January 13-17, Washington DC, United States
4. Peiravian, F., **Derrible, S.**, & 2019, "Manifestation of Coupled Geometric Complexity in Urban Road Networks", *TRB 98th Annual Meeting*, Transportation Research Board, January 13-17, Washington DC, United States
5. Lee, D., **Derrible, S.**, & Pereira, F., 2018 "Comparison of Four Types of Artificial Neural Networks and Multinomial Logit Model for Travel Mode Choice Modeling", *TRB 97th Annual Meeting*, Transportation Research Board, January 7-11, Washington DC, United States
6. Wisetjindawat, W., **Derrible, S.**, & Kermanshah, A., 2018 "Modeling the Effectiveness of Infrastructure and Travel Demand Management Measures to Improve Traffic Congestion During Typhoons", *TRB 97th Annual Meeting*, Transportation Research Board, January 7-11, Washington DC, United States
7. Balasubramani, B., Belingheri, O., Boria, E., Cruz, I., **Derrible, S.**, & Siciliano, M., 2017 "[GUIDES - Geospatial Urban Infrastructure Data Engineering Solutions](#)" (Demo Paper), Proceedings of the 24th ACM SIGSPATIAL, International Conference on Advances in Geographic Information Systems, November 7-10, Los Angeles, CA, USA
8. Kermanshah, A., & **Derrible, S.**, 2017 "An Evaluation of Transportation Network Robustness Against Extreme Flooding: A GIS-based Approach", *TRB 96th Annual Meeting*, Transportation Research Board, January 8-12, Washington DC, United States
9. Golshani, N., Shabanpour, R., Mahmoudifard, S., **Derrible, S.**, & Mohammadian, A., 2017 "Comparison of artificial neural networks and statistical copula-based joint models", *TRB 96th Annual Meeting*, Transportation Research Board, January 8-12, Washington DC, United States
10. Shabanpour, R., Golshani, N., **Derrible, S.**, Mohammadian, A., & Miralinaghi, M., 2017 "A cluster-based joint model of travel mode and departure time choices", *TRB 96th Annual Meeting*, Transportation Research Board, January 8-12, Washington DC, United States
11. Peiravian, F., & **Derrible, S.**, 2016 "Exploration of Geometric Complexity in Urban Road Networks", *TRB 95th Annual Meeting*, Transportation Research Board, January 10-14, Washington DC, United States
12. Amini, B., Peiravian, F., Mojarradi, M. & **Derrible, S.**, 2016 "Comparative Traffic Performance Analysis of Urban Transportation Network Structures", *TRB 95th Annual Meeting*, Transportation Research Board, January 10-14, Washington DC, United States
13. Wang, X., Koç, Y., **Derrible, S.**, Ahmad, N. & Kooij, R.E., 2015 "Quantifying the Robustness of Metro Networks", *6th INSTR - The Value of Reliability, Robustness and Resilience*, International Symposium on Transportation Network Reliability, August 2-3, Nara, Japan
14. Kermanshah, A., & **Derrible, S.**, 2015 "A GIS Method For Measuring Road System Resilience to Extreme Events", *6th INSTR - The Value of Reliability, Robustness and Resilience*, International Symposium on Transportation Network Reliability, August 2-3, Nara, Japan
15. Peiravian, F., de Lapparent, M. & **Derrible, S.**, 2015 "Transportation Networks, People, and Buildings: Characterization of Urban System Components", *TRB 94th Annual Meeting*, Transportation Research Board, January 11-15, Washington DC, United States
16. Peiravian F., Kermanshah A., **Derrible, S.**, & Andris, C., 2014, "Spatial Data Analysis of Complex Urban Systems", *2014 IEEE*

International Conference on Big Data, October 27-30, Washington DC, United States

90th Annual Meeting, Transportation Research Board, January 23-27, Washington DC, United States

17. Kermanshah, A., Karduni, A., Peiravian, F., & **Derrible, S.**, 2014 "Impact Analysis of Extreme Events on Flows in Spatial Networks", *2014 IEEE International Conference on Big Data*, October 27-30, Washington DC, United States
18. Peiravian, F. & **Derrible, S.**, 2014 "Complete Streets Designs: A Comparative Emission Impact Analysis", *TRB 93rd Annual Meeting*, Transportation Research Board, January 12-16, Washington DC, United States
19. Cottrill, C. & **Derrible, S.**, 2013 "Leveraging Big Data for the Development of Transport Sustainability Indicators", *World Conference on Transport Research*, July 15-18, Rio de Janeiro, Brazil
20. **Derrible, S.** & Cottrill, C., 2013 "How new Technologies can contribute to measuring Sustainable Mobility", *TRB 92nd Annual Meeting*, Transportation Research Board, January 13-17, Washington DC, United States
21. **Derrible, S.**, 2012 "Using Network Centrality to Determine Key Transfer Stations in Public Transportation Systems", *TRB 91st Annual Meeting*, Transportation Research Board, January 22-26, Washington DC, United States
22. **Derrible, S.**, 2011 "The Toronto Metro: History, Demand, and Performance", *TRB 90th Annual Meeting*, Transportation Research Board, January 23-27, Washington DC, United States
23. **Derrible, S.** & Farooq, B., 2010 "The Four Outcomes of Transit and Land-Use", *CTRF 45th Annual Conference*, Canadian Transportation Research Forum, May 30 – June 02, Toronto, ON, Canada
24. **Derrible, S.** & Kennedy, C., 2010 "Evaluating, Comparing, and Improving Metro Networks: an application to the Toronto plans", *TRB 89th Annual Meeting*, Transportation Research Board, January 10-14, Washington DC, United States
25. **Derrible, S.**, Saneinejad, S., Sugar, L. & Kennedy, C., 2010 "Macroscopic Greenhouse-gases emissions model of urban transportation for municipalities", *TRB 89th Annual Meeting*, Transportation Research Board, January 10-14, Washington DC, United States
26. **Derrible, S.** & Kennedy, C., 2009 "Comparing the GTA Transit Plan to major transit networks in the World using Graph Theory concepts", *TRANSLOG 1st Annual International Conference*, June 17-18, Hamilton, ON, Canada
27. **Derrible, S.** & Kennedy, C., 2009 "A Network Analysis of Subway Systems in the World using Updated Graph Theory", *TRB 88th Annual Meeting*, Transportation Research Board, January 11-15, Washington DC, United States
28. **Derrible, S.**, Kennedy, C., Miller, E. & Roorda, M., 2008 "Light Rail Transit in Toronto: Underground or Above-ground". Proceedings, Annual Conference - Canadian Society for Civil Engineering 4:2649-2658

book reviews

1. **Derrible, S.**, 2017 "[Marc Barthelemy, The structure and dynamics of cities: Urban data analysis and theoretical modeling](#)", *Environment and Planning B: Urban Analytics and City Science*, DOI: 10.1177/2399808317721785
2. **Derrible, S.**, 2016, "[Street smart](#)", *Science*, 354(6310):293-293
3. **Derrible, S.**, 2015, "[Inside the mind of an engineer](#)", *Science*, 349(6247):484-484
4. **Derrible, S.**, 2015 "[Smart Transport Networks: Market Structure, Sustainability and Decision Making](#), T. Vanoutrive, A. Verhetsel (Eds.)", *Journal of Transport Geography*, 44(0):91
5. **Derrible, S.**, 2015, "[Seeing the forest for the trees](#)", *Science*, 347(6229):1426-1426
6. **Derrible, S.**, 2015 "[The New Science of Cities](#), Michael Batty", *Journal of Industrial Ecology*, 19(2):333-334
7. Good, M., & **Derrible, S.**, 2013 "[Book Review: Triumph of the City](#), Edward

[Glaeser](#)", *Journal of Transport and Land Use*, 6(3):87-89

conference abstracts & technical reports

1. Haas, N, & **Derrible, S.**, 2020 "Set it and Forget It: Why the Slow Cooker Approach to Engineering Design and Maintenance is Incompatible with Climate Change and Resiliency", *Actionable Science for Urban Sustainability (AScUS) 2020*, June 3-5, Segovia, Spain (virtual)
2. Movahedi, A, & **Derrible, S.**, 2020 "Identifying spatial patterns and profiles of electricity consumption in Chicago to develop tailored and actionable energy reduction policies", *Actionable Science for Urban Sustainability (AScUS) 2020*, June 3-5, Segovia, Spain (virtual)
3. **Derrible, S.**, 2019, "Past, Present, and Future Engineering Issues of Canal Systems Through Three Case Studies", *Proceedings of the Planning and developing embankment of Saigon River and an urban river-canal network and solutions to basically embank the Saigon River and the urban river-canal network by year 2025*, September 10, Ho Chi Minh City, Vietnam
4. **Derrible, S.**, Yesiller, N., & Choi, J., 2019 "[Workshop on Post-Disaster Materials and Environmental Management](#)", National Science Foundation, Alexandria, VA
5. Movahedi, A, Lee, D, Badhrudeen, M, & **Derrible, S.**, 2019 "Building Energy Modeling: Investigating Patterns of Electricity, Gas, and Water Consumption in Large-Scale Buildings using Machine Learning", *10th International Conference in Industrial Ecology*, International Society for Industrial Ecology, July 7-11, Beijing, China
6. Mulrow, J., Bozeman, J., Pai, S., & **Derrible, S.**, 2019 "All Cars Run on Renewables: Tracing Solar and Manufactured Energy Flow through the Fuel Cycle", *10th International Conference in Industrial Ecology*, International Society for Industrial Ecology, July 7-11, Beijing, China
7. **Derrible, S.**, [Contributor to Research Column of Informs' Decision Analysis Today May 2018](#), 37(1):22-24
8. Nazari F., Mohammadian A., & **Derrible S.**, 2018 "Interactions between Energy/Water consumption and travel decisions in activity-based framework" *15th International Conference on Travel Behavior Research (IATBR)*, July 18, Santa Barbara, CA, United States
9. Deanes, J., Machaj, K., Mulrow, J., & **Derrible, S.**, 2017 "Know Your Carbon Footprint: Calculator Comparison and Preference Survey", *Joint 9th International Conference in Industrial Ecology - 25th International Symposium on Sustainable Systems and Technology*, International Society for Industrial Ecology, June 25-29, Chicago, IL, United States
10. Ahmad, N., & **Derrible, S.**, 2017 "Application of Information Theory to Detect Changes in The Evolution of Fossil and Non-Fossil Fuel Consumption in The United States", *Joint 9th International Conference in Industrial Ecology - 25th International Symposium on Sustainable Systems and Technology*, International Society for Industrial Ecology, June 25-29, Chicago, IL, United States
11. Cairo, P., Klawitter, D., Lee, D., & **Derrible, S.**, 2017 "Decision Tree Analysis of Residential Water Use in the United States", *Joint 9th International Conference in Industrial Ecology - 25th International Symposium on Sustainable Systems and Technology*, International Society for Industrial Ecology, June 25-29, Chicago, IL, United States
12. Lee, D., & **Derrible, S.**, 2017 "Comparison of Mode Choice Behavior using Four Types of Artificial Neural Networks", *Transport Chicago 2017*, June 9, Chicago, IL, United States
13. **Derrible, S.**, 2016, "Leveraging Big Data and Data Mining to Rethink Traditional Sustainability Metrics", *International Congress on Sustainability Science & Engineering (ICOSSE)*, October 25, Suzhou, Jiangsu, China (keynote)
14. Mulrow, J., **Derrible, S.**, Ashton, W., & Chopra, S., 2016 "Determining the Requirements for Building-Scale Industrial Symbiosis", *ISSST 2016*, International Symposium on Sustainable Systems and

- Technology, May 16-18, Phoenix, AZ, United States
15. Ahmad, N., & **Derrible, S.**, 2016 "A Network-Based Approach to Track Social, Economic, and Environmental Trends in World Countries", *ISSST 2016*, International Symposium on Sustainable Systems and Technology, May 16-18, Phoenix, AZ, United States
 16. Ahmad, N., & **Derrible, S.**, 2015 "Analyzing Multivariate Time Series Data using a Network-Based Approach", *Network Frontier Workshop 2015*, December 6-7, Evanston, IL, United States
 17. Kermanshah, A, Ahmad, N., Berkelhammer, M., & **Derrible, S.**, 2015 "Resilience in Complex Systems: A GIS Analysis of Extreme Events Impact on Infrastructure Networks", *8th International Conference in Industrial Ecology*, International Society for Industrial Ecology, July 7-10, Surrey, United Kingdom
 18. Reeder, M., & **Derrible, S.**, 2015 "Estimating Electricity Waste in Commercial Buildings Due to Over-Cooling in the US", *8th International Conference in Industrial Ecology*, International Society for Industrial Ecology, July 7-10, Surrey, United Kingdom
 19. **Derrible, S.**, Ahmad, N., & Theis, T., 2015 "Capturing the Sustainability of Urban Systems using Fisher Information: Application to Public Transport", *8th International Conference in Industrial Ecology*, International Society for Industrial Ecology, July 7-10, Surrey, United Kingdom
 20. Ahmad, N., **Derrible, S.**, & Kermanshah, A., 2015 "Towards Sustainable Development: A Network Approach", *8th International Conference in Industrial Ecology*, International Society for Industrial Ecology, July 7-10, Surrey, United Kingdom
 21. Kermanshah, A., & **Derrible, S.**, 2015 "Using Climate Models to Assess the Resilience of Roads to Extreme Events", *ISSST 2015*, International Symposium on Sustainable Systems and Technology, May 18-20, Dearborn, MI, United States
 22. **Derrible, S.**, Ahmad, N., & Theis, T., 2015 "Using Fisher Information to Measure the Sustainability of Urban Systems", *ISSST 2015*, International Symposium on Sustainable Systems and Technology, May 18-20, Dearborn, MI, United States
 23. Reeder, M., & **Derrible, S.**, 2015 "Estimating Electricity Waste in Commercial Buildings due to Over-Cooling in the United States", *UIC Student Research Forum*, April 2, Chicago, IL, United States
 24. Peiravian, F., & **Derrible, S.**, Peiravian, F., 2014 "Empowering Students with Knowledge and Knowhow on Sustainability", *AASHE Annual Conference*, Association for the Advancement of Sustainability in Higher Education (AASHE), October 26-29, Portland, OR, United States
 25. Ahmad, N., & **Derrible, S.**, 2014 "Evolution of Water Consumption in the USA: A Network Approach", *Illinois Water 2014*, October 14-15, Urbana, IL, United States
 26. Kermanshah, A., Peiravian, F., Ahmad, N., & **Derrible, S.**, 2014 "Investigating Transportation Network Resilience to Extreme Events", *NetSci 2014 International School and Conference on Network Science*, June 2-6, Berkeley, CA, United States
 27. Ahmad, N., Kermanshah, A., Peiravian, F., & **Derrible, S.**, 2014 "Network Science: A Potential Tool for Analyzing Water Consumption in the USA", *NetSci 2014 International School and Conference on Network Science*, June 2-6, Berkeley, CA, United States
 28. Peiravian, F., Ahmad, N., Kermanshah, A. & **Derrible, S.**, 2014 "Questioning Box-Counting Method as a Tool for Fractal Characterization of Physical Networks", *NetSci 2014 International School and Conference on Network Science*, June 2-6, Berkeley, CA, United States
 29. Peiravian, F., & **Derrible, S.**, 2013 "Adopting a Fractal Approach to study the Complexity of Urban Systems", *7th International Conference in Industrial Ecology*, International Society for Industrial Ecology, June 25-28, Ulsan, South Korea
 30. **Derrible, S.** & Mohareb, E., 2013 "Can Jane Jacobs' principles be applied in the developing world for successful and green

urban economies", *7th International Conference in Industrial Ecology*, International Society for Industrial Ecology, June 25-28, Ulsan, South Korea

Carbon Neutral and Improving Climate Change Resilience in Cities". *First World Congress on Cities and Adaptation to Climate Change*, May 28-30, Bonn, Germany

University of Hong Kong, November 8, Hong Kong

31. Peiravian, F., & **Derrible, S.**, 2013 "Spatial analysis of urban systems: A fractal approach", *Spatial Statistics 2013*, June 4-7, Columbus, OH, United States

36. **Derrible, S.** & Kennedy, C., 2009 "How Complex are Subway Networks", *5th International Conference in Industrial Ecology*, International Society for Industrial Ecology, June 21-24, Lisbon, Portugal

4. **Derrible, S.**, 2019, "Applications of Machine Learning to Inform Policy-Making for Urban Sustainability", *Asian and Policy Studies Seminar*, Education University of Hong Kong, November 8, Hong Kong

32. **Derrible, S.**, Diao, M., Zegras, C., Ferreira, J., Ben-Akiva, M., & Xiang, Y., 2012 "Real Estate Modeling in Singapore", *Future Urban Mobility Symposium 2012*, National University of Singapore, January 11-12, Singapore

37. **Derrible, S.** & Kennedy, C., 2009 "How does network size affect the energy use of subway systems", *5th International Conference in Industrial Ecology*, International Society for Industrial Ecology, June 21-24, Lisbon, Portugal

5. **Derrible, S.**, 2019, "Advances in Urban Engineering: Machine Learning, Infrastructure Interdependencies, Design Processes", *Engineering Systems & Design Seminar Research Seminar*, Singapore University of Technology and Design, September 25, Singapore

33. **Derrible, S.**, 2010 "Greenhouse-Gas Emissions of Commercial Vehicles in Municipalities: adding Freight Transportation to MUNTAG", report to the Toronto and Region Conservation Authority, Toronto, ON, Canada

keynotes, invited talks, and others

1. **Derrible, S.**, 2020, "The Rise of Urban Engineering for Smart, Sustainable, Resilient Urban Infrastructure", *Smart Public Transport Lab Webinar*, TU Delft, May 6, Delft, Netherlands

6. **Derrible, S.**, 2019, "Digital Twinning Mobility", *NSF SUS-Smart City Digital Twin Workshop*, Georgia Institute of Technology, September 16, Atlanta, GA, United States

34. Kennedy, C., Bristow, D., **Derrible, S.**, Mohareb, E., Rulff, D., Saneinejad, S., Stupka, R., Sugar, L., Zizzo, R. & McIntyre, B., 2010 "Getting to carbon neutral: a guide for cities". *International Conference on Urbanization and Global Environmental Change*, Urbanization and Global Environmental Change (UGEC) - an IHDP Core Project, October 15-17, Tempe, AZ, United States

2. **Derrible, S.**, 2020, "Infrastructures Urbaines : Intelligence et Interdépendances", *Séminaire CoDiUM*, Institut de Recherche en Sciences et Techniques de la Ville, April 9, Nantes, France

7. **Derrible, S.**, 2019, "Past, Present, and Future Engineering Issues of Canal Systems Through Three Case Studies", *Planning and developing embankment of Saigon River and an urban river-canal network and solutions to basically embank the Saigon River and the urban river-canal network by year 2025*, September 10, Ho Chi Minh City, Vietnam (keynote)

35. Sugar L., Kennedy C., Bristow D., **Derrible S.**, Mohareb E., Saneinejad S., Stupka R., Sugar L., Zizzo R., & McIntyre B., 2010 "Getting to

3. **Derrible, S.**, 2019, "Using Machine Learning to Study Infrastructure Interdependencies and Urban Engineering Systems", *Energy and Environment Research Seminar*, City

8. **Derrible, S.**, 2019, "Power of Machine Learning and AI for Planning Cities", *Academic Seminar*, CoderSchool, August 22, Ho Chi Minh City, Vietnam

9. **Derrible, S.**, 2019, "Engineering Issues of Canal Systems", *Ideas and Solutions for Developing Canalside Spaces in Ho Chi Minh City*, University of Architecture, August 22, Ho Chi Minh City, Vietnam
10. **Derrible, S.**, 2019, "Machine Learning for Civil Engineers", *Science Presentation on Civil Engineering*, University of Transport Technology, July 24, Hanoi, Vietnam
11. **Derrible, S.**, 2019, "Smart Data Management and Operations of Urban Infrastructure using Geographic Information Systems", *International Conference on Smart Cities*, July 18, Seoul, Korea (keynote)
12. **Derrible, S.**, 2019, "Engineering Smart and Integrated Cities", *Department of Civil Engineering Annual Seminar and Retreat*, University of Transport Technology, July 3, Halong Bay, Vietnam
13. **Derrible, S.**, 2019, "Designing Smart Cities Intelligently in a Technology-Addicted Era", *Issues of Urban Reinvention Panel Discussion*, Illinois Institute of Technology, June 5, Chicago, IL, United States
14. **Derrible, S.**, 2019, "Defining Urban Engineering to Help Design Sustainable and Resilient Cities", *Civil, Environmental, and Sustainable Engineering Seminar Series*, Arizona State University, April 8, Tempe, AZ, United States
15. **Derrible, S.**, 2018, "Shaping Future Cities to be Smart, Sustainable, and Resilient", *3rd International Graduate Student Symposium of the PhD Program at IIT College of Architecture*, Illinois Institute of Technology, November 17, Chicago, IL, United States (keynote)
16. **Derrible, S.**, 2018, "Urban Data Mining to Understand Urban Metabolism", *ISEE Congress 2018*, University of Illinois at Urbana-Champaign, October 4, Urbana, IL, United States
17. **Derrible, S.**, 2018, "Leveraging Machine Learning to Integrate and Decentralize Urban Infrastructure", *Sustainable and Resilient Infrastructure Seminar Series*, University of Illinois at Urbana-Champaign, October 3, Urbana, IL, United States
18. **Derrible, S.**, 2018, "Using Network Frequency Analysis to Detect Trends and Cluster World Countries to Track Sustainable Development", *International Society for Industrial Ecology (ISIE) Gordon Research Conference (GRC)*, May 23, Les Diablerets, Switzerland
19. **Derrible, S.**, 2018, "The Power of Planning Cities", TEDx Walter Payton College Prep, April 12, Chicago, IL, United States
20. **Derrible, S.**, 2018, "What is machine learning and how can we use it to better understand urban consumption patterns?", *Golisano Institute for Sustainability Seminar Series*, Rochester Institute of Technology, April 18, Rochester, NY, United States
21. **Derrible, S.**, 2017, "Using Machine Learning to Capture Non-Linear Properties in Residential Consumption: A Case for Water, Transport, and Electricity", *Ecological Systems Design Seminar Series*, ETH Zurich, December 19, Zurich, Switzerland
22. **Derrible, S.**, 2017, "Using Data Science to Capture New Insights into Energy and Resource Consumption", *Environmental Engineering Seminar Series*, University of Wisconsin Madison, December 4, Madison, WI, United States
23. **Derrible, S.**, 2017, "Leveraging Data Science to Learn New Things about Old Systems", *Industrial Engineering Seminar Series*, Purdue University, November 29, West Lafayette, IN, United States
24. **Derrible, S.**, 2017, "Integrating Urban Infrastructure Systems for the Design of Smart, Sustainable, and Resilient Cities", *Civil Engineering Seminar Series*, University of Pittsburgh, October 20, Pittsburgh, PA, United States
25. **Derrible, S.**, 2017, "Système d'agriculture urbaine et de symbiose industrielle Plant Chicago", Séminaire de clôture du projet P-G&City, CIRAD Lavalette, September 29, Montpellier, France
26. **Derrible, S.**, 2017, "Leveraging Data Science to Uncover Patterns in Energy and Resource Consumption", *Engineering Systems & Design Seminar Series*, Singapore University of Technology and Design, May 19, Singapore

27. **Derrible, S.**, 2017, "The Role of Data Science for the Design of Sustainable and Resilient Urban Infrastructure", *Future of Urban Mobility Seminar*, Singapore-MIT Alliance for Research and Technology, May 18, Singapore
28. **Derrible, S.**, 2017, "The Role of Computer Science in Redesigning Civil Infrastructure Systems", *Computer Science Seminar Series*, March 6, Chicago, IL, United States
29. **Derrible, S.**, 2017, "Redefining Urban Infrastructure Planning and Design: Moving towards Integration", *Workshop on Urban Mobility in the Era of Smart and Connected Communities*, February 10, Chicago, IL, United States
30. **Derrible, S.**, 2016, "Machine Learning for non-Computer Scientists", *United States Gypsum Tek Talk*, October 5, Libertyville, IL, United States
31. **Derrible, S.**, 2016, "Critically Interdependent by Design: Re-Thinking Infrastructure Planning", *Modern Solutions Power Systems Conference (MSPSC)*, June 9, Chicago, IL, United States
32. **Derrible, S.**, 2016, "Linking urban infrastructure systems: Future smart cities", *Workshop on Computational Challenges in Cooperative Intelligent Urban Transport*, Schloss Dagstuhl, March 2, Wadern, Germany
33. **Derrible, S.**, 2016 "Re-Engineering Cities: The Role of Complexity Science", *Wednesdays @ NICO Seminar*, Northwestern Institute on Complex Systems, Northwestern University, Evanston, IL, United States
34. **Derrible, S.**, 2015 "Complexity in Future Cities: The Rise of Networked Infrastructure", *Future Cities Workshop*, University of Seoul, November 20, Seoul, South Korea
35. **Derrible, S.**, 2015 "Complexity as a Lever of Creativity for Sustainable Infrastructure Design", *Research Design in Urban Science Course*, University of Washington, October 20, Seattle, WA, United States
36. **Derrible, S.**, 2015 "Resilience is not a Tree: Can Christopher Alexander help us design more resilient systems?", *22nd ISSST*, International Symposium on Sustainable Systems and Technology, May 19, Dearborn, MI, United States
37. **Derrible, S.**, 2015, "Using Complexity Theory to Gain New Information and Help Design More Sustainable and Resilient Urban Systems", *Lectures in Civil and Environmental Engineering*, Northwestern University, March 13, Evanston, IL, United States
38. **Derrible, S.**, 2014, "Difference between "Sustainability" and "Resilience"?", *Symposium on Sustainable Engineering*, University of Illinois at Chicago, December 2, Chicago, IL, United States
39. **Derrible, S.**, 2014 "Water and Sustainability", *Urban Systems and Networks Satellite, NetSci 2014 International School and Conference on Network Science*, June 2, Berkeley, California
40. **Derrible, S.**, 2014 "Water, Networks, Complexity, and Cities: Extracting New Information from Old Systems", *CME Environmental Seminar*, University of Illinois at Chicago, April 17, Chicago, IL, United States
41. Zenil, H. & **Derrible, S.**, 2014 "World Metro Networks", Wolfram Demonstrations Project, <http://demonstrations.wolfram.com/WorldMetroNetworks/>, Accessed January 29, 2014
42. **Derrible, S.**, 2014 "Harvesting Complexity to Build Smarter Cities", *Northwestern University Transportation Center Seminar*, Northwestern University, January 9, Evanston, IL, United States
43. **Derrible, S.**, 2013 "Fractals, power laws, and networks: how complexity can help better plan cities", *Department of Urban Planning and Policy's Friday Forums*, University of Illinois at Chicago, November 15, Chicago, IL, United States
44. **Derrible, S.**, 2013 "What metros have to teach us, from complexity to centrality", *Networking Transportation Networkers*, Coventry University, September 26, Coventry, United Kingdom

45. **Derrible, S.**, 2013 "Urban Planning, Resilience and Sustainability from the perspective of Complex Systems", *Metropolitan Planning Council*, July 15, Chicago, IL, United States
46. **Derrible, S.**, 2013 "Resilience Planning: Concepts and Applications to Urban Issues", *Metropolitan Planning Council*, May 15, Chicago, IL, United States
47. **Derrible, S.**, 2013 "Redesigning Urban Infrastructure Networks for a Smarter Future", *Smart Cities Seminar*, University of California Berkeley, February 1, Berkeley, CA, United States
48. **Derrible, S.**, 2012 "Rethinking Transit Planning: Lessons from Complex Networks", *CTS IGERT Seminar Series*, University of Illinois at Chicago, October 10, Chicago, IL, United States
49. **Derrible, S.**, 2012 "Redesigning Urban Systems: A Network Approach", *Urban Engineering Seminar*, Imperial College London, March 30, London, United Kingdom
50. **Derrible, S.**, 2012 "Adopting a Complex Network approach to better understand and design Urban Infrastructure", *Sustainable Infrastructure Systems Seminar*, University of Illinois at Chicago, March 16, Chicago, IL, United States
51. **Derrible, S.**, 2012 "Transit systems: new perspectives and novel methods, a network topological approach", *MIT Transit Research Group Meeting*, Massachusetts Institute of Technology, February 10, Boston, MA., United States
52. **Derrible, S.**, 2012 "Overview of the Singaporean Transit System", *Rail Transit Systems Committee Meeting, TRB 91st Annual Meeting*, Transportation Research Board, January 23, Washington DC, United States
53. **Derrible, S.**, 2011 "Transit Network Designs: Thoughts for the Future of Urban Mobility", *Future of Urban Mobility Seminar*, Singapore-MIT Alliance for Research and Technology, September 6, Singapore
54. **Derrible, S.**, 2011 "Research Activities on Infrastructure Networks: Past, Present, and Future", *Infrastructure Systems Seminar*, Georgia Institute of Technology, April 18, Atlanta, GA, United States
55. **Derrible, S.**, 2011 "Urban Infrastructure Networks: past research and future avenues", *Construction Engineering and Management Seminar*, Columbia University, March 24, New York City, NY, United States
56. **Derrible, S.**, 2010 "Mobility Cultures in Paris and Toronto", *Mobility Cultures in Megacities Kick-off Workshop*, Institute for Mobility Research, November 17-19, Munich, Germany
57. **Derrible, S.**, 2010 "Properties and Effects of Metro Network Design", *Sustainable Infrastructure Group Research Discussion Day*, University of Toronto, May 27, Toronto, Ontario, Canada
58. **Derrible, S.**, Saneinejad, S., Sugar, L. & Kennedy, C., 2010 "Calculating transportation GHG emissions for municipalities", *Transportation Systems (ITS) Lab Seminar Series*, University of Toronto, March 5, Toronto, Ontario, Canada
59. **Derrible, S.**, 2009 "Unraveling the mysteries of the complexity of metro networks", *Transportation Systems (ITS) Lab Seminar Series*, University of Toronto, November 6, Toronto, Ontario, Canada
60. **Derrible, S.** & Kennedy, C., 2009 "Energy Use of Subway Networks in the Sustainability era", *CORS-INFORMS 2009 International Meeting*, Canadian Operational Research Society, June 14-17, Toronto, Ontario, Canada
61. **Derrible, S.**, 2009 "Public Transit Network Characteristics and Design: results and lessons learnt", *First Annual Joint ITE section Student Presentation Competition Job Fair*, Canadian Institute of Transportation Engineers Toronto, Hamilton, Southwest Ontario, University of Waterloo, March 4, Waterloo, Ontario, Canada
62. **Derrible, S.**, 2009 "Using Graph Theory to Analyse Subway Networks: What can we learn?", *Transportation Systems (ITS) Lab Seminar Series*, University of Toronto, February 27, Toronto, Ontario, Canada

press

1. The Conversation, 2019, "[Millions of burnt trees and rusted cars: Post-disaster cleanup is expensive, time-consuming and wasteful](#)" by **Sybil Derrible**, Nazli Yesiller, and Juyeong Choi (December 10)
2. CME News, 2019, "[Professor Sybil Derrible leads workshop on post disaster cleanup](#)" by David Staudacher (July 24)
3. UIC News, 2019 "[Making city infrastructure more resilient](#)" by Sharon Parmet (January 10)
4. CME Alumni Newsletter - Spring 2018, 2018, "[Professor Derrible Featured at TEDx Talk](#)" by David Staudacher (July 24)
5. UIC News, 2017, "[Campus Conversation tackles complexity of climate change](#)" by Hoda Fakhari (November 9)
6. De Volkskrant, 2017, "[Er hoeft maar dít te gebeuren en het hele metronet ligt stil](#)", by Francien Bossema (June 28)
7. CME Alumni Newsletter - Spring 2016, 2016, "[Derrible Researching the Development of Sustainable Communities](#)" by David Staudacher (April 25)
8. SPM 1ère, 2016, "[Journal: Edition du Matin](#)" by Patrick Caillet (April 21)
9. UIC News, 2016, "[Engineering faculty members receive NSF CAREER Awards](#)" by Bill Burton (March 29)
10. UIC News, 2015, "[Re-thinking design to build sustainable cities](#)" by Gary Wisby (June 16)
11. SPM 1ère, 2013 "[Ça vous regarde est à Chicago](#)" by Claire Arrossaména (November 28)
12. GlobalEd 2, 2013 [Podcast on "Infrastructure, Sustainability, and Water Management"](#) by Jeremy Riel (October 17)
13. Metropolitan Planning Council, 2013 "[Tough Stuff: Resilient Infrastructure in a Changing World](#)" by MPC (May 15). Find video [here](#)
14. Institute for Environmental Science and Policy, 2012 [Fall 2012 Newsletter](#) by IESP
15. txchnologist, 2011 "[The Lonely Podcar: Who Will Take a Chance on Personal Transit?](#)" by Christopher Mims
16. planningpool, 2010 "[CTRF 2010: Linking land use and transit](#)" by Christine Allum

04 editorial and reviewing activities

editor

- [Cleaner Production Letters](#) (Elsevier) – Associate Editor (2020 – pres)
- [Journal of Infrastructure Systems](#) (ASCE) – Associate Editor (2018 – pres)
- [Transportmetrica B: Transport Dynamics](#) (Taylor and Francis) – Guest Editor on Special Issue (2020): “Reliability and Resilience of Emerging Mobility Systems”
- [Journal of Industrial Ecology](#) (Wiley) – Guest Editor on Special Issue (2018): “Industrial Ecology for Climate Change Adaptation and Resilience”
- [Complex Systems](#) – Editorial Board Member (2017 – pres)
- [Journal of Urban Planning and Development](#) (ASCE) – Editorial Board Member (2015 – pres)
- [Sustainable and Resilient Infrastructure](#) (Taylor and Francis) – Editorial Board Member (2015 – 2019)

- [Journal of Infrastructure Systems](#) (ASCE) – Guest Editor on Special Issue (2016): “Infrastructure Resilience to Climate Change”
- [Journal of Industrial Ecology](#) (Wiley) – Guest Editor on Special Issue (2015): “Advances in Complex Adaptive Systems and Industrial Ecology”

proposal and project reviewer

- American Association for the Advancement of Science (AAAS) (1)
- Engineering and Physical Sciences Research Council (EPSRC) (UK) (1)
- ETH Zurich Research Commission (2)
- German Israeli Foundation for Scientific Research and Development (1)
- Illinois Water Resources Center (1)
- Israel Science Foundation (1)
- Mid-Atlantic Transportation Sustainability University Transportation Center (1)
- National Cooperative Highway Research Program (NCHRP) (1)
- National Science Foundation (9)

- Netherlands Organisation for Scientific Research (1)
- Transit Cooperative Research Program (TCRP) (1)
- Sloan Foundation (1)
- UCLA Institute of Transportation Studies (1)
- University of Illinois at Chicago (1)
- Vienna Science and Technology Fund (1)

international reports

- *Resource Requirements of Future Urbanization* (2017) by the International Resource Panel (IRP) – part of the United Nations Environment Program (UNEP)

book and book proposal reviewer

- CRC Press (2)
- MIT Press (3)
- Pearson (1)
- Routledge (1)
- Wiley (1)

journal reviewer

- ACM CHI Conference on Human Factors in Computing Systems (1)
- ASCE Journal of Infrastructure Systems (10)
- ASCE Journal of Transportation Engineering (2)
- ASCE Journal of Urban Planning and Development (19)
- Buildings (1)
- Canadian Transportation Research Forum (1)
- Climatic Change (2)
- Complex Systems (1)
- CRC Press (1)
- Energy and Buildings (2)
- Environment and Planning B: Urban Analytics and City Science (6)
- Environmental Sciences (1)
- International Conference on Smart Cities (4)
- International Journal of Sustainable Transportation (3)
- International Journal of Urban Sciences (2)
- International Society for Industrial Ecology Biennale Conference (33)
- International Symposium on Transportation Network Reliability (5)
- Journal of Hydrology (1)
- Journal of Industrial Ecology (6)
- Journal of Planning Education and Research (2)
- Journal of Structural Integrity and Maintenance (2)
- Journal of the Royal Society Interface (2)
- Journal of Transport and Land-Use (3)
- Journal of Transport Geography (9)
- Journal of Urban Technology (2)
- Nature Sustainability (2)
- Networks and Spatial Economics (3)
- Physica A: Journal of Statistical Mechanics and its Applications (8)
- PLoS ONE (2)
- Reliability Engineering and System Safety (2)
- Renewable & Sustainable Energy Reviews (2)
- Resources, Conservation & Recycling (2)
- Risk Analysis (1)
- Royal Society Open Science (1)
- Scientific Data (2)
- Springer Handbook Chapter (1)
- SpringerPlus (1)
- Structure and Infrastructure Engineering (1)
- The Professional Geographer (1)
- Transactions on Internet Technology (1)
- Transport Findings (1)
- Transport Policy (5)
- Transport Reviews (2)
- Transportation (4)
- Transportation Letters (2)
- Transportation Research Board Annual Meeting (79)
- Transportation Research Part A: Policy and Practice (1)
- Transportation Research Part D: Transport and Environment (3)
- Transportation Research Part E: Logistics and Transportation Review (1)
- Transportation Science (1)
- Transportmetrica B (1)
- Urban Studies (2)

05 research projects

current projects

university of Illinois at Chicago

Investigating Attitudinal and Behavioral Changes in US Households Before, During, and After the COVID-19 Pandemic

may 2020 – pres

Objective: Develop, deploy, and analyze a household travel survey to capture attitudinal and behavioral changes in US households with the COVID-19 pandemic. All data collected is anonymized and shared in open access.

Depopulation in Illinois: Understanding and Forecasting Impacts on Transportation

may 2019 – pres

Objective: Analyze current depopulation trends in places around the state of Illinois, forecast the potential impacts, and identify transportation solutions.

Smart Railroad Engineering

aug 2018 – pres

Objective: Leverage the profusion of data and the abilities of machine learning to rethink and improve railroad operation.

Lowering Water Consumption in the United States and the world

aug 2018 – pres

Objective: Use machine learning to better understand how households consume water and model the effectiveness of policies and technologies to reduce water consumption.

Converting Infrastructure Maps from CAD to GIS

aug 2017 – pres

Objective: Develop protocols and machine learning models to accurately convert infrastructure maps from CAD to GIS format.

Fundamental Diagram of Household Energy and Resource Consumption

aug 2016 – pres

Objective: Identify and measure the presence of scaling laws in how household energy and resources are being consumed.

Green StormWater Infrastructure Modeling (G-SWIM)

aug 2016 – pres

Objective: Scaled analysis of green stormwater infrastructure from site monitoring investigations to regional impact modeling.

past projects

university of Illinois at Chicago

Converting to Low-Impact Technology

aug 2016 – dec 2019

Objective: Using big data on transportation, energy, and material use to derive possible pathways for converting high-impact technology use to low-impact.

Machine-based Statistical Learning of Urban Metabolism

aug 2015 – dec 2019

Objective: Designing high-performance machine-based statistical learning models that

can be applied in the context of urban metabolism.

Stormwater Runoff of Argyle Street: Pre and Post Green Infrastructure

aug 2017 – aug 2019

Objective: Model pre and post stormwater runoff management scenario of existing green infrastructure in Argyle Street in Chicago using EPA SWMM.

Sentiment Analysis of Tweets Related to Civil Infrastructure across US Cities

aug 2018 – aug 2019

Objective: Collect tweets with specific keywords related to civil infrastructure for a list of cities across the US and analyze their sentiment using Natural Language Processing (NLP) and QGIS

Value Engineering Cities

jan 2017 – jul 2018

Objective: Develop an assessment method to evaluate the value of cities based on their infrastructure.

Modeling the Impact of Climate Change on Stormwater Infrastructure: Application to Elmhurst, IL

dec 2017 – mar 2018

Objective: Simulate the impact of Climate change on existing stormwater infrastructure by using the climate model output and XPSWMM.

Tracking Resource Consumption Trends using Network Theory

aug 2014 – aug 2018

Objective: Create, develop and apply a new fundamental network theoretical methodology to track trends in resource consumption in the world.

Measuring the Resilience of Urban Transportation Networks to Extreme Events

aug 2013 – may 2017

Objective: Simulate and measure the impact of extreme events on urban transportation systems by using climate model outputs and concepts of networks science.

Urban Infrastructure is not a Tree: Integrating and Decentralizing Urban Infrastructure Networks

aug 2015 – may 2016

Objective: Adapt Christopher Alexander's *A City is not a Tree* concept to urban infrastructure and determine how urban infrastructure networks can be better integrated and decentralized for smarter cities.

GIS to Network Tool Development

jan 2015 – aug 2016

Objective: Develop an ArcGIS, python, and QGIS tool to convert any GIS polyline feature into a network format.

Facility-Scale Industrial Symbiosis

jan 2015 – may 2016

Objective: Define a novel approach to co-locating small production businesses within a single facility, based on established industrial symbiosis and circular economy principles.

Estimating The Cost of Over-Cooling Commercial Buildings in the United States

aug 2014 – aug 2015

Objective: Compare building electricity use data with simulated data (using DOE's eQuest) to

estimate the energy and monetary cost of over-cooling commercial buildings.

Water Consumption Networks in the United States

aug 2013 – jul 2014

Objective: Use a network science methodology to study how water consumption has evolved in the United States.

Geometric Complexity of Urban Road Networks

aug 2012 – dec 2014

Objective: Develop novel methodologies to study and characterize the complex geometry of urban road networks, which can in turn lead to a better understanding of their encompassing urban systems.

singapore-mit alliance for research and technology

SimMobility: Long-Term and Performance Assessment

aug 2011 – jul 2012

Objective: Develop state-of-the-art integrated transportation and land-use platform, using advanced discrete choice behavioral models. Enable more meaningful evaluation of alternative sustainability mobility systems for the future of urban mobility.

university of toronto

Greenhouse-Gas Urban Freight Transportation Model

nov – dec 2010

Objective: Develop estimation guidelines to evaluate the municipal greenhouse-gas emissions related to the transportation of

freight. Work to be included in the *Carbon Neutral City Planner* software.

Waterfront Toronto Climate Positive Tool Development

aug – oct 2010

Objective: Assist in the development of the Climate Positive (CP) Tool, in particular, the development of a Toronto-specific model to compute transportation-related inputs to the tool that are sensitive to Waterfront Toronto neighborhood design (dwelling typology, street layout, etc.). Review of the CP Tool and strategic analysis of application for lower don lands.

Getting to Carbon Neutral: A Guide to Canadian Municipalities

sep 2008 – jan 2010

Objective: Synthesize current knowledge of sustainable urban design, and present it in a way that can help Canadian municipalities to become carbon neutral. The definition of carbon neutrality in this document implies direct / indirect municipal emissions minus sequestered carbon and offsets sum to zero.

Urban and Regional Macro-Economics

sep 2006 – sep 2008

Objective: Develop macro-economic measures to compare worldwide cities, investigating the role of savings, capital formation and imports/exports.

06 grants, scholarships, fellowships, and awards

grants

university of illinois at chicago

RAPID/Collaborative Research: Investigating Attitudinal and Behavioral Changes in US Households Before, During, and After the COVID-19 Pandemic 2020

Lead PI \$110,351
Sponsor: National Science Foundation (NSF)

EAGER: Sustainable Material Management Extreme Events Reconnaissance (SUMMEER) Organization 2020

Co-PI \$299,999
Sponsor: National Science Foundation (NSF)

Smart City Digital Twin Convergence Conference 2019

Co-PI \$49,213
Sponsor: National Science Foundation (NSF)

Understanding and Forecasting the Impacts of Depopulation in Illinois 2019

Sole PI \$276,572
Sponsor: Illinois Department of Transportation

Workshop on Post-Disaster Materials and Environmental Management 2019

Lead PI \$49,946
Sponsor: National Science Foundation (NSF)

Intelligent Welding: Real Time Monitoring, Diagnosis, Decision and Control using Multi-sensor and Machine Learning 2016

Co-PI \$501,554
Sponsor: UI Labs

CyberPhysical Systems: Synergy: Collaborative Research: Mapping and Querying Underground Infrastructure Systems 2016

Co-PI \$420,000
Sponsor: National Science Foundation (NSF)

CAREER: Understanding the Fundamental Principles Driving Household Energy and Resource Consumption for Smart, Sustainable, and Resilient Communities 2016

Sole PI \$500,000
Sponsor: National Science Foundation (NSF)

Transportation Systems Modeling for Detroit 2015

Sole PI \$40,907
Sponsor: Argonne National Laboratory

CyberSEES: Type 2: Feasibility of a Data Integration Framework for Urban Metabolism 2013

Co-PI \$616,000
Sponsor: National Science Foundation (NSF)

Developing a new GIS tool to calculate the Topological and Fractal Dimensions of Cities 2013

Sole PI \$9,935
Sponsor: College of Engineering Annual Fund

Assessing Sustainable Freight Policies Using Microsimulation Approach 2012

Co-PI \$78,998
Sponsor: National Center for Freight & Infrastructure Research (CFIRE)

university of toronto

Greenhouse-Gas Emissions of Commercial Vehicles in Municipalities: adding Freight Transportation to MUNTAG 2010

Co-PI
Sponsor: Toronto and Region Conservation Authority

Climate Positive Tool Development 2010

Co-PI
Sponsor: Clinton Climate Initiative and Waterfront Toronto

Getting to Carbon Neutral 2008-10

Co-PI
Sponsor: Toronto and Region Conservation Authority

fellowships, scholarships and awards

Textbook *Urban Engineering for Sustainability* recognized as one of "12 Must-Read Earth Day Books" in 2020 2020

Source: MIT Press – see [article here](#)

COE Teaching Award 2019

Source: University of Illinois at Chicago
Based on teaching evaluations

- COE Research Award** 2017 International Society for Industrial Ecology
Source: University of Illinois at Chicago
Based on merit
For the 2009 ISIE conference in Lisbon, Portugal
- COE Teaching Award** 2017 ITE chapters of Toronto, Hamilton and Southwest Ontario
Source: University of Illinois at Chicago
Based on teaching evaluations
Silver award
- NSF CAREER Award** 2016 **Open Fellowship** 2006–2010
Source: National Science Foundation
University of Toronto
Renewed annually based on maintaining a GPA of at least A
- COE Advising Award** 2016
Source: University of Illinois at Chicago
Based on advising evaluations
- COE Teaching Award** 2014 **Design, Make and Test Best Project-of-the-Year Award** 2005
Source: University of Illinois at Chicago
Based on teaching evaluations
Imperial College London
This is a one-year long project mandatory to all third-year students
- COE Advising Award** 2014 **Open Scholarship** 2001–2010
Source: University of Illinois at Chicago
Based on advising evaluations
Conseil Territorial of St Pierre and Miquelon
Renewed annually based on success and recommendation
- Natural Sciences and Engineering Research Council of Canada** 2011
Post-Doctoral Fellowship
Funding for two years – national competition
- CN Railway Scholarship** 2009
Canadian Transportation Research Forum
Six scholarships per year – national competition
- MMM Group Ltd. Scholarship** 2009
Transportation Association of Canada
Eighteen scholarships per year – national competition
- ISIE Conference Student Scholarship** 2009

07 advising

doctoral advising

Chauhan, Rishabh **aug 2019 – pres**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Machine Learning in Urban Engineering

Lapamonpinyo, Pipatphon **aug 2017 – pres**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Railroad Engineering

Movahedi, Ali **aug 2017 – pres**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Dynamics of Energy and Resource Consumption

Badhrudeen, Mohamed **aug 2017 – pres**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Paratransit Demand and Supply

Alnajim, Khalid **aug 2017 – pres**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Urban Water Demand

Mulrow, John **may 2016 – dec 2019**
Ph.D. Candidate

Civil and Materials Engineering
University of Illinois at Chicago
Topic: Study and Assessment of Sustainable Technologies in Cities

Lee, Dongwoo **aug 2015 – aug 2019**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Machine-based Statistical Learning of Urban Metabolism

Haas, Nicholas **aug 2014 – pres**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topics: Green StormWater Infrastructure Modeling (G-SWIM)

Ahmad, Sk Nasir **aug 2014 – aug 2018**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Tracking Energy and Resource Consumption for Sustainable Development

Kermanshah, Amir **aug 2013 – may 2017**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: A Geographic Analysis of the Resilience of Urban Infrastructure Networks to Extreme Events

Peiravian, Farid **sep 2012 – dec 2014**
Ph.D. Candidate
Civil and Materials Engineering
University of Illinois at Chicago

Topic: Geometric Complexity of Urban Road Networks

master advising

Tiwari, Ranjita **aug 2016 – aug 2018**
M.S. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Measuring and Modeling the Performance of Green Infrastructure

Maciver, Scot **aug 2016 – jul 2018**
M.S. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Value Engineering Cities

Delpazir, Dena **jan 2017 – mar 2018**
M.S. Candidate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Modeling Large-Scale Urban Stormwater Runoff

Eva Chancé **apr 2016 – sep 2016**
M.S. Intern
AgroSup Dijon (France)
French National Agriculture Institute (INRA)
Topic: Industrial Symbiosis of Plant Chicago

Mulrow, John **aug 2014 – may 2016**
M.S. Candidate
Civil and Materials Engineering
University of Illinois at Chicago

Topic: Facility-Scale Industrial Symbiosis Integrating Small-Scale Production and the Circular Economy

Ahmad, Sk Nasir **aug 2013 – aug 2014**

M.S. Candidate

Civil and Materials Engineering
University of Illinois at Chicago

Topic: Evolution of Water Consumption in the USA: A Network Approach

Bulusu, SrimaniTejaswini

sep 2012 – may 2013

M.S. Candidate

Civil and Materials Engineering
University of Illinois at Chicago

Topic: Carbon Footprint

Xiang, Yunke

oct 2011 – jul 2012

Master of City Planning candidate

Department of Urban Studies and Planning
Massachusetts Institute of Technology

Topic: Real Estate Modeling in Singapore

undergraduate advising

Quadros, Royce

may 2019 – aug 2019

Undergraduate Research Student

Civil and Materials Engineering
University of Illinois at Chicago

Topic: Green Infrastructure Maintenance

Naranjo, Nalin

jan 2019 – present

Undergraduate Research Student

Civil and Materials Engineering
University of Illinois at Chicago

Topic: GIS and Underground Infrastructure

Miguest, Jacob

jul 2018 – may 2019

Undergraduate Research Student

Civil and Materials Engineering
University of Illinois at Chicago

Topic: 3D Modeling and Printing

Fonteix, Guillemette

mar 2018 – aug 2018

Summer Intern

Ecole Nationale des Sciences Géographiques
(ENSG) (France)

French National School of Geographic Sciences

Topic: Geospatial Mapping Protocol and Survey of Underground Infrastructure

Ali, Sania

aug 2017 – may 2019

Undergraduate Research Student

Civil and Materials Engineering
University of Illinois at Chicago

Topic: Food Carbon Footprint Smartphone App

Dana, Yousef

aug 2017 – aug 2018

Undergraduate Research Student

Civil and Materials Engineering
University of Illinois at Chicago

Topic: Virtual Reality in Civil Engineering

Chenu, Bastien

mar 2017 – aug 2017

Summer Intern

Ecole Nationale des Sciences Géographiques
(ENSG) (France)

French National School of Geographic Sciences

Topic: Geospatial Mapping of Underground Infrastructure

Munoz, Jonathan

jun 2017 – aug 2017

Guaranteed Paid Internship Program

Computer Science

University of Illinois at Chicago

Topic: Building an Online Food Carbon Footprint Calculator

Machaj, Katherine

aug 2016 – may 2017

Undergraduate Research Student

(NSF REU)

Civil and Materials Engineering
University of Illinois at Chicago

Topic: Surveying Preferences for Carbon Footprint Smartphone App

Deans, Joshua

aug 2016 – may 2017

Undergraduate Research Student

(NSF REU)

Civil and Materials Engineering
University of Illinois at Chicago

Topic: Assessment of Carbon Footprint Calculators

Sitko, Katarzyna

aug 2016 – may 2017

Undergraduate Research Student

Civil and Materials Engineering
University of Illinois at Chicago

Topic: 3D Printing in Civil Engineering

Hill, Ian

aug 2016 – dec 2016

Undergraduate Research Student

(Chancellor's Awards)

Civil and Materials Engineering
University of Illinois at Chicago

Topic: Data Analysis of Building Energy Use

Shaw, Jovaun

aug 2016 – dec 2016

Undergraduate Research Student

Civil and Materials Engineering
University of Illinois at Chicago

Topic: GIS Mapping of Civil Engineering Systems

Norberto, Julia

may 2016 – jul 2016

Exchange Research Fellow
Brazilian Scientific Mobility Program
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Facility-Scale Urban Metabolism

Santos, Patricia **may 2016 – aug 2016**

Exchange Research Fellow
Brazilian Scientific Mobility Program
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Climate and Building Energy Use

Marinho, Rodrigo **may 2016 – aug 2016**

Exchange Research Fellow
Brazilian Scientific Mobility Program
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Python and QGIS Tool Development

Alves, Felipe **may 2016 – aug 2016**

Exchange Research Fellow
Brazilian Scientific Mobility Program
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Network Properties of Urban Roads

Klawitter, David **jan 2016 – aug 2016**

Research Affiliate
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Climate and Water Consumption

Cairo, Peter **jan 2016 – aug 2016**

Undergraduate Research Student
Civil and Materials Engineering
University of Illinois at Chicago
Topic: US Water Consumption

Imsha, Saulius **jan 2016 – oct 2016**

Undergraduate Research Student
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Building Energy Use

Kessler, Daniel **jan 2015 – may 2016**

Undergraduate Research Student
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Bipartite Representation of Infrastructure Networks

de Souza, Paloma Morais **aug 2015 – may 2016**

Exchange Research Fellow
Brazilian Scientific Mobility Program
Civil and Materials Engineering
University of Illinois at Chicago
Topic: UIC Infrastructure Systems as Networks

White, Kimberly **aug 2015 – dec 2015**

Undergraduate Research Student
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Engineering Structures as Complex Structures

Reeder, Matthew **aug 2014 – aug 2015**

Undergraduate Research Fellow
(Chancellor's Award)
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Commercial Building Electricity Use

Sombrio, Eduardo Schaefer **may 2015 – aug 2015**

Exchange Research Fellow
Brazilian Scientific Mobility Program
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Network Properties of Road Systems

Godinho Jr., Flavio Irã **may 2015 – aug 2015**

Exchange Research Fellow
Brazilian Scientific Mobility Program
Civil and Materials Engineering
University of Illinois at Chicago
Topic: UIC Infrastructure Systems as Networks

Agondanou, Nouhessedo **aug 2014 – may 2015**

Undergraduate Researcher
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Modeling Building Energy Use

Nainggolan, Laura **aug 2014 – dec 2014**

Undergraduate Researcher
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Modeling the Impacts of Extreme Events

Nedumgottil, Anthony **jun 2014 – aug 2014**

Guaranteed Paid Internship Program
Computer Science
University of Illinois at Chicago
Topic: Building an Online Network Calculator

Pereira, Felipe **may 2014 – aug 2014**

Exchange Research Fellow
Brazilian Scientific Mobility Program
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Genetic Optimization of Metro Design

Andrew, Gary (Joe) **jan 2014 - may 2014**

Undergraduate Research Fellow
(Chancellor's Award)
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Structures as Complex Systems

Jacobs, Paul **aug 2013 - may 2014**

Undergraduate Research Fellow
(Chancellor's Award)
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Urban Water Systems

Agamy, Marian **aug 2013 - dec 2013**

Undergraduate Research Fellow
(Chancellor's Award)
Civil and Materials Engineering
University of Illinois at Chicago
Topic: Sustainable Bridges

Roux, Sabine **apr - aug 2010**

Exchange student from Ecole Nationale des
Travaux Publics de l'Etat (ENTPE)
Civil Engineering
University of Toronto
Topic: Transportation Infrastructure in the
Urban Metabolism

08 teaching experience

CME594 Introduction to Data Science

Winter 2019 – 38 students – instructor
Graduate course

CME440 Cities & Sustainable Infrastructure

Fall 2018 – 38 students – instructor
Graduate and Senior course
See [The Image of Chicago](#) poster (3.9 Mb)
See [Design Project Book](#) Compilation (32.2 Mb)

CME594 Introduction to Data Science

Winter 2018 – 33 students – instructor
Graduate course

CME440 Cities & Sustainable Infrastructure

Fall 2017 – 43 students – instructor
Graduate and Senior course
See [The Image of Chicago](#) poster (5.5 Mb)
See [Design Project Book](#) Compilation (21.4 Mb)

CME594 Introduction to Data Science

Winter 2017 – 15 students – instructor
Graduate course

CME440 Cities & Sustainable Infrastructure

Fall 2016 – 51 students – instructor
Graduate and Senior course
See [The Image of Chicago](#) poster (4 Mb)
See [Design Project Book](#) Compilation (28.3 Mb)

CME594 Introduction to Data Science

Winter 2016 – 13 students – instructor
Graduate course

CME 311 Water Resources Engineering

Fall 2015 – 34 students – instructor
Junior course

CME 494 Cities & Sustainable Infrastructure

Winter 2015 – 35 students – instructor
Graduate and Senior course
See [The Image of Chicago](#) poster (48.3 Mb)
See [Design Project Book](#) Compilation (32.1 Mb)

CME 311 Water Resources Engineering

Fall 2014 – 48 students – instructor
Junior course

CME594 Cities and Complexity

Winter 2014 – 6 students – instructor
Graduate course
See [Visualization Poster](#) (5.6Mb)

CME 311 Water Resources Engineering

Fall 2013 – 46 students – instructor
Junior course

CME 494 Cities & Sustainable Infrastructure

Winter 2013 – 19 students – instructor
Graduate and Senior course
See [Design Project Book](#) Compilation (11.7 Mb)

CME 311 Water Resources Engineering

Fall 2012 – 47 students – instructor
Junior course

CIV 577 Infrastructure for Sustainable Cities

Winter 2010 – 47 students – teaching assistant
Graduate and Senior course

CIV 1310 Infrastructure Economics

Fall 2009 – 70 students – teaching assistant
Graduate course

EDV 250 Hydrology and Hydraulics

Winter 2009 – 127 students – teaching assistant
Sophomore course

CIV 368 Engineering Economics and Decision-Making

Fall 2008 – 114 students – teaching assistant
Junior course

CIV 235 Civil Engineering Graphics PO1

Winter 2008 – 108 students – teaching assistant
Sophomore course

CIV 1310 Infrastructure Economics

Fall 2007 – 51 students – teaching assistant
Graduate course

CIV 425 Design of sustainable neighbourhoods

Fall 2006 and Winter 2007 – 40 students – teaching assistant
Senior course

09 academic and professional services

professional services

Actionable Science for Urban Sustainability (AScUS) 2020 jun 2020

Organizing Committee
Discussion Session Organizer
Segovia, Spain (virtual)

Congrès International de Géotechnique - Ouvrages - Structures (CIGOS) oct 2019

Scientific Committee Member
Session Chair
Hanoi, Vietnam

International Society for Industrial Ecology (ISIE) 2019 jul 2019

Session Organizer and Chair
Scientific Committee Member
Beijing, China

C.A.C.S.S. Cactus Show apr 2019

Cactus Competition Judge
Desert Botanical Garden, Phoenix, AZ

Buildings, Cities, and Performance — 3rd International Graduate Student Symposium of the PhD Program at IIT College of Architecture nov 2018

Scientific Committee Member
Chicago, IL

Transportation Network Modeling Committee (ABD30) — Transportation Research Board (TRB)

Committee Member jun 2018 – pres

International Symposium on Sustainable Systems and Technology (ISSST) 2018 jun 2018

Resilient Infrastructure Technical Committee Member
Buffalo, NY

1st International Conference on New Horizons in Green Civil Engineering (NHICE-01) apr 2018

Scientific Committee Member
Victoria, BC

Sustainable Urban Systems (SUS) Section — International Society for Industrial Ecology nov 2017 – pres

Chair

Critical Transportation Infrastructure Protection Committee (ABR10) — Transportation Research Board (TRB) nov 2017 – pres

Vice-Chair

Dream Big: Engineering our World oct 2017

Speaker
Envisioning Future Cities sep 2017
Workshop Organizer (Brooklyn NY)

Girls Who Code (GWC) jul 2017

Speaker
International Society for Industrial Ecology (ISIE) 2017 jun 2017

Session Chair
Chicago, IL

Data Mining in Industrial Ecology — International Society for Industrial Ecology jun 2017

Workshop Organizer

Organizing Research for Infrastructure Resilience — International Symposium on Sustainable Systems and Technology jun 2017

Workshop Organizer

Critical Transportation Infrastructure Protection Committee (ABR10) — Transportation Research Board (TRB) apr 2017 – nov 2017

Committee Member

Girls Who Code (GWC) jul 2016

Speaker

International Symposium on Sustainable Systems and Technology (ISSST) 2016 may 2016

Session Chair
Poster Competition Judge
Phoenix, AZ

Sustainable Urban Systems (SUS) Section — International Society for Industrial Ecology may 2016 – oct 2017

Co-Chair

International Society for Industrial Ecology dec 2015 – pres

Council Member

International Society for Industrial Ecology (ISIE) 2017 Biennale Conference
jul 2015 – jul 2017
Organizing Committee (Host Institution)
University of Illinois at Chicago

Sustainable Urban Systems (SUS) Section —
International Society for Industrial Ecology
feb 2015 – apr 2016
Board Member

International Symposium on Sustainable Systems and Technology (ISSST) 2015
may 2015
Poster Competition Judge
Dearborn, MI

International Society for Industrial Ecology (ISIE) 2013 Biennale Conference jun 2013
Poster Competition Judge
University of Ulsan, South Korea

Illinois (Chicago) Future Cities Competition (Grade 6-8 students) jan 2013
Judge Panel Member

Rail Transit Systems Committee (AP065) —
Transportation Research Board (TRB)
apr 2010 – pres
Committee Member

academic services

university of illinois at chicago

Derrible, S.

CME Undergraduate Recruitment Committee
sep 2017 – pres
Chair

CME Undergraduate Curriculum Committee
sep 2017 – pres
Member

CME Advisory Committee
sep 2016 – pres
Member

UIC Graduate College Awards Committee
sep 2015 – sep 2017
Member

CME Graduate Curriculum Committee
sep 2015 – sep 2017
Member

CME Computer Committee
sep 2015 – sep 2017
Member

CME Website Committee apr 2015 – sep 2016
Member

UIC Summer Institute on Sustainability and Energy project competition aug 2014
Mentor

CME Undergraduate Recruitment Committee
oct 2013 – sep 2017
Member

CME Departmental Seminar Committee
oct 2013 – sep 2015
Member

CME Undergraduate Curriculum Committee
sep 2013 – sep 2015
Member

IESP Graduate Fellowship sep 2013
Selection Committee Member

UIC Summer Institute on Sustainability and Energy project competition aug 2013
Mentor

Wilfred F. and Ruth Davison Langelier Scholarship dec 2012 – pres
Selection Committee Member

CME Graduate Selection Committee
sep 2012 – aug 2013
Member

IESP Graduate Fellowship sep 2012
Selection Committee Member

UIC Summer Institute on Sustainability and Energy project competition aug 2012
Judging Panel Member

university of toronto

Academic Board jul 2009 – jun 2010
Graduate Student Member

Academic Appeals Committee
jul 2009 – jun 2010
Graduate Student Representative

Committee on Academic Policy and Programs jul 2009 – jun 2010

Curriculum Vitae as of July 2020

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Graduate Student Representative

University Tribunal **jul 2008 - jun 2010**
Student Member

Civil Engineering Departmental Council
 jul 2008 - jun 2009
Graduate Student Representative

Civil Engineering Academic Appeals
Committee **jul 2008 - jun 2009**
Graduate Student Member

Faculty of Engineering Council
 jul 2007 - jun 2008
Graduate Student Representative

10 professional and scientific memberships

Member, American Society of Civil Engineers (ASCE) 2012 – pres

Member, International Society for Industrial Ecology (ISIE) 2009 – pres

Member, TRB Transportation Network Modeling Committee (ABD30) 2018 – pres

Member, TRB Critical Transportation Infrastructure Protection (ABR10) 2017 – pres

Member, TRB Rail Transit Systems Committee (AP065) 2010 – pres

Friend, TRB Rail Transit Systems Committee (AP065) 2009 – 2010

Friend, TRB Transportation Network Modeling (ADB30) 2014 – 2018

Friend, TRB Landscape and Environmental Design Committee (AFB40) 2014 – pres

Friend, TRB Visualization in Transportation Committee (ABJ95) 2014 – pres

Friend, TRB Public Transportation Planning and Development Committee (AP025) 2012 – pres

Friend, TRB Transportation and Sustainability Committee (ADD40) 2009 – pres

Member, Institute of Transportation Engineering (ITE) 2009 – 2014

Friend, TRB Intercity Passenger Rail Committee (AR010) 2009 – 2013

Friend, TRB Transportation and Economic Development Committee (ADD10) 2009 – 2013

Member, Canadian Transportation Research Forum (CTRF) 2009 – 2012

Member, Canadian Society of Civil Engineers (CSCE) 2007 - 2012

11 hobbies

- Swimming
- Free Diving (AIDA 2* certified)
- Scuba Diving (PADI Open Water certified)
- Antipées (i.e., wander around cities as defined by Raymond Queneau)
- Reading
- Traveling