

# Michael Szell

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## Publications

- 52. H. Wolf, A.R. Vierø, M. Szell  
**CoolWalks: Assessing the potential of shaded routing for active mobility in urban street networks**, *arXiv:2405.01225* (2024, submitted)
- 51. C.M. Büth, A. Vybornova, M. Szell  
**superblockify: A Python Package for Automated Generation, Visualization, and Analysis of Potential Superblocks in Cities**, *arXiv:2404.15062* (2024, submitted)
- 50. L.M. Aiello, A. Vybornova, S. Juhász, M. Szell, E. Bokányi  
**Urban highways are barriers to social ties**, *arXiv:2404.11596* (2024, submitted)
- 49. M. Coscia, C. Borgelt, M. Szell  
**Fast Multiplex Graph Association Rules for Link Prediction**, *arXiv:2211.12094* (2022, submitted)
- 48. L. Alessandretti, M. Szell  
**Urban Mobility**, *Compendium of Urban Complexity*, *arXiv:2211.00355*, (2022, submitted)
- 47. A.R. Vierø, A. Vybornova, M. Szell  
**How Good Is Open Bicycle Network Data? A Countrywide Case Study of Denmark**, *Geographical Analysis* (2024, in print)
- 46. D. Rhoads, C. Rames, A. Solé-Ribalta, M.C. González, M. Szell, J. Borge-Holthoefer  
**Sidewalk networks: Review and outlook**, *Computers, Environment and Urban Systems* 106, 102031 (2023)
- 45. A.R. Vierø, A. Vybornova, M. Szell  
**BikeDNA: A Tool for Bicycle Infrastructure Data & Network Assessment**, *Environment and Planning B* 51(2), 512–528 (2024)
- 44. A. Battiston, L. Napoli, P. Bajardi, A. Panisson, A. Perotti, M. Szell, R. Schifanella  
**Revealing the determinants of gender inequality in urban cycling with large-scale data**, *EPJ Data Science* 12, 9 (2023)
- 43. S.M. Breum, B. Kostic, M. Szell  
**Computational Desire Line Analysis of Cyclists on the Dybbølsbro Intersection in Copenhagen**, *Transport Findings* 56683 (2022)
- 42. P. Folco, L. Gauvin, M. Tizzoni, M. Szell  
**Data-driven micromobility network planning for demand and safety**, *Environment and Planning B* 50(8), 2087–2102 (2023)
- 41. L. Alessandretti, L.G. Natera Oroczo, M. Saberi, M. Szell, F. Battiston  
**Multimodal urban mobility and multilayer transport networks**, *Environment and Planning B* 50(8), 2038–2070 (2023)
- 40. M. Klanjčić, L. Gauvin, M. Tizzoni, M. Szell  
**Identifying urban features for vulnerable road user safety in Europe**, *EPJ Data Science* 11, 27 (2022)
- 39. M. Szell, S. Mimar, T. Perlman, G. Ghoshal, R. Sinatra  
**Growing urban bicycle networks**, *Scientific Reports* 12, 6765 (2022)
- 38. A. Vybornova, T. Cunha, A. Gühnemann, M. Szell  
**Automated Detection of Missing Links in Bicycle Networks**, *Geographical Analysis* 55(2), 239–267 (2023)

37. M. Coscia, M. Szell  
**Multiplex Graph Association Rules for Link Prediction**, *Proceedings of the International Conference on Web and Social Media (ICWSM)* 15(1), 129–139 (2021)
36. M. Schläpfer, L. Dong, K. O’Keeffe, P. Santi, M. Szell, H. Salat, S. Anklesaria, M. Vazifeh, C. Ratti, G.B. West  
**The universal visitation law of human mobility**, *Nature* 593(7860), 522–527 (2021)
35. L.G. Natera Orozco, F. Battiston, G. Iñiguez, M. Szell  
**Data-driven strategies for optimal bicycle network growth**, *Royal Society Open Science* 7:201130 (2020)
34. L.G. Natera Orozco, F. Battiston, G. Iñiguez, M. Szell  
**Extracting the multimodal fingerprint of urban transportation networks**, *Transport Findings* 13171 (2020)
33. F. Battiston, F. Musciotto, D. Wang, A.-L. Barabási, M. Szell, R. Sinatra  
**Taking census of physics**, *Nature Reviews Physics* 1, 89–97 (2019)
32. B. Resch, M. Szell  
**Human-Centric Data Science for Urban Studies**, *ISPRS International Journal of Geo-Information* 8, 584 (2019)
31. M. Szell, Y. Ma, R. Sinatra  
**A Nobel opportunity for interdisciplinarity**, *Nature Physics* 14, 1075–1078 (2018)
30. M. Szell  
**Crowdsourced quantification and visualization of urban mobility space inequality**, *Urban Planning* 3, 1–20 (2018)
29. S. Grauwin, M. Szell, S. Sobolevsky, P. Hövel, F. Simini, M. Vanhoof, Z. Smoreda, A.-L. Barabási, C. Ratti  
**Identifying the structural discontinuities of human interactions**, *Scientific Reports* 7, 46677 (2017)
28. Y. Holovatch, O. Mryglod, M. Szell, S. Thurner  
**Analyses of a virtual world**, In: *Math Meets Myth: Complexity-science approaches to folktales, myths, sagas, and histories*, Springer, Eds.: R. Kenna, M. Maccarron, P. Maccarron (2017)
27. R. Tachet, O. Sagarra, P. Santi, G. Resta, M. Szell, S. Strogatz, C. Ratti  
**Scaling law of urban ride sharing**, *Scientific Reports* 7, 42868 (2017)
26. M. Nyhan, S. Sobolevsky, C. Kang, P. Robinson, A. Corti, M. Szell, D. Streets, Z. Lu, R. Britter, S.R.H. Barrett, C. Ratti  
**Predicting vehicular emissions in high spatial resolution using pervasively measured transportation data and microscopic emissions model**, *Atmospheric Environment* 140, 352–363 (2016)
25. R. Sinatra, P. Deville, M. Szell, D. Wang, A.-L. Barabási  
**A century of physics**, *Nature Physics* 11, 791–796 (2015)
24. O. Sagarra, M. Szell, P. Santi, A. Diaz-Guilera, C. Ratti  
**Supersampling and network reconstruction of urban mobility**, *PLOS ONE* 10(8), e0134508 (2015)
23. M. Szell, P. Santi, C. Ratti  
**Trip sharing in the era of self-driving cars**, *Autonomous Vehicles Conference*, New York University (2015)
22. M. Szell, R. Sinatra  
**Research funding goes to rich clubs**, *Proceedings of the National Academy of Sciences* 112(48), 14749–14750 (2015)
21. O. Mryglod, B. Fuchs, M. Szell, Y. Holovatch, S. Thurner  
**Interevent time distributions of human multi-level activity in a virtual world**, *Physica A* 419, 681–690 (2014)

20. P. Santi, G. Resta, M. Szell, S. Sobolevsky, S. Strogatz, C. Ratti  
**Quantifying the benefits of vehicle pooling with shareability networks**, *Proceedings of the National Academy of Sciences* 110(37), 13290–13294 (2014)
19. M. Szell, S. Grauwin, C. Ratti  
**Contraction of online response to major events**, *PLOS ONE* 9(2), e89052, (2014)
18. P. Santi, G. Resta, M. Szell, S. Sobolevsky, S. Strogatz, C. Ratti  
**Reply to Lopez et al.: Sustainable implementation of taxi sharing requires understanding systemic effects**, *Proceedings of the National Academy of Sciences* 111(51), E5489 (2014)
17. M. Szell, B. Groß  
**Hubcab – Exploring the Benefits of Shared Taxi Services**, *Decoding the City*, De Gruyter, Eds.: D. Offenhuber, C. Ratti (2014)
16. M. Szell  
**Connecting Paradigms**, *Science* 343(6147), 970–971 (2014)
15. R. Sinatra, M. Szell  
**Entropy and the predictability of online life**, *Entropy* 16(1), 543–556 (2014)
14. S. Sobolevsky, M. Szell, R. Campari, T. Couronné, Z. Smoreda, C. Ratti  
**Delineating geographical regions with networks of human interactions in an extensive set of countries**, *PLOS ONE* 8(12), e81707 (2013)
13. M. Szell, B. Groß  
**Hubcab – Taxi-Fahrgemeinschaften, digital erkundet**, *Stadt entschlüsseln*, Bauwelt Fundamente 150, Birkhäuser, Eds.: D. Offenhuber, C. Ratti (2013)
12. S. Thurner, P. Klimek, M. Szell, G. Duftschmid, G. Endel, A. Kautzky-Willer, D. Kasper  
**Reply to Klitz and Niklasson: Can viral infections explain the cross-sectional Austrian diabetes data?**, *Proceedings of the National Academy of Sciences* 110, E2751 (2013)
11. S. Thurner, P. Klimek, M. Szell, G. Duftschmid, G. Endel, A. Kautzky-Willer, D. Kasper  
**Quantification of excess-risk for diabetes when born in times of hunger, in an entire population of a nation, across a century**, *Proceedings of the National Academy of Sciences* 110, 4703–4707 (2013)
10. M. Szell, S. Thurner  
**How women organize social networks different than men**, *Scientific Reports* 3, 1214 (2013)
9. M. Szell, R. Sinatra, G. Petri, S. Thurner, V. Latora  
**Understanding mobility in a social petri dish**, *Scientific Reports* 2, 457 (2012)
8. M. Szell, S. Thurner  
**Social dynamics in a large-scale online game**, *Advances in Complex Systems* 15, 1250064 (2012)
7. S. Thurner, M. Szell, R. Sinatra  
**Emergence of good conduct, scaling and Zipf laws in human behavioral sequences in an online world**, *PLOS ONE* 7, e29796 (2012)
6. M. Szell  
**Statistical physics approaches to large-scale socio-economic networks**, *Dissertation*, University of Vienna (2011)
5. S. Thurner, M. Szell (Eds.)  
**Book of abstracts ECCS’11 Vienna**, *European Conference on Complex Systems 2011*, Löcker (2011)
4. M. Szell, S. Thurner  
**Measuring social dynamics in a massive multiplayer online game**, *Social Networks* 32, 313–329 (2010)
3. M. Szell, R. Lambiotte, S. Thurner  
**Multirelational organization of large-scale social networks in an online world**, *Proceedings of the National Academy of Sciences* 107, 13636–13641 (2010)

2. M. Szell  
**Finite Differenzen Verfahren zur numerischen Lawinensimulation**, *Diploma thesis*, Vienna University of Technology (2007)
1. M. Szell, F. Judex  
**Petri Net Modelling of Different Strategies in ARGESIM Comparison C4 "Dining Philosophers" with HPSim**, *Simulation News Europe* 17, 1 (2007)

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