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## Curriculum Vitae: Itzhak Benenson

### Professional coordinates:

- Position: Full Professor, Department of Geography and Human Environment, School of Geosciences, Faculty of Exact Sciences, Tel Aviv University
- Address: Department of Geography and Human Environment, Tel Aviv University, 69978, Ramat-Aviv, Tel Aviv, Israel
- Email: [bennya@post.tau.ac.il](mailto:bennya@post.tau.ac.il)
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### Research Interests:

- Mathematical modeling and simulation of complex system dynamics with applications to urban, transport and ecological systems,
- Environmental impact assessment and modeling of human impact
- Applications of GIS in environmental, land use and transportation studies
- Applied statistics and geostatistics.

### Higher Education:

1975: MS in mathematics (Urals State University, Sverdlovsk, Russia)

1984: PhD in mathematical biophysics (Moscow State University, Moscow, Russia)

### Editorships:

2016 – now: Cities and Nature, Springer Book Series, Co-Editor

2016 – now: Sustainability MDPI, Sustainable Transportation Section board

2015 – now: Computers, Environment and Urban Systems, Associate Editor

2012 – now: Geomatics and Geostatistics: SciTechnol

2012 – 2015: URISA journal, Thematic editor for urban and regional systems and modeling

2009 – 2016: Environment and Planning B, Planning and Design, Editorial Board

2005 – 2015: Computers, Environment and Urban Systems, Editorial Board

### Other administrative and professional services (selected):

2015: Member of the Israeli EMET prize committee,

2008 – now: Member of the TAU Porter School Council,

2008 – 2013: Head of the Department of Geography and Human Environment,

2009 – now: Member of the IGU Commission on Geographical Information Science,

2000 – now: International conference on Geocomputation, steering committee

### G. STUDENTS SUPERVISED

#### G0. POST-DOCTORAL STUDENTS

1. Michael Galichinsky, Detection of forest fires in Samaria using Meteosat-8/9 data, Ariel University Center (Co-supervising with Dr Yaakov Anker), 2013 - 2014

2. Andrey Shabalov, Modeling Car-Pedestrian accidents at the Black Spots (with Prof Shraga Shoval), 2014 - 2017

#### G1. DOCTORAL STUDENTS

##### Graduated

1. Adital Levi "Investigation of Association between Air Pollution and Acute Respiratory Illnesses in Tel-Aviv area, Based on Distribution of Particles in Sputum and Pulmonary Function," Graduated 2006
2. Erez Hatna "Individual Behavior and Emerging City Structure," Graduated 2007, Currently Johns Hopkins University, USA, Assistant Prof
3. Shlomit Flint, School of History, "Statutory planning versus urban reality: Jerusalem as a test case," Graduated 2011, Currently ULC, London, Postdoc
4. Daniel Broitman, Technion, (Co-supervising with Prof Daniel Czamanski, Technion) "The fusion of economic and non-economic factors in the land-use models", Graduated 2012, Currently, Free Univ Amsterdam, Postdoc
5. Nadav Levy, Porter School of Environmental Science, April 2011, (Co-supervising with Prof Karel Martens, Radboud Univ, Nijmegen, Holland) "*Modeling parking search and parking in the city*", Graduated 2015, Postdoc BGU from October 2015  
Best Presentation at the TRB Doctoral Workshop 2016 award, Washington DC, 12/01/2016
6. Marina Toger, Technion, July 2012 (Co-supervising with Prof. Daniel Czamanski, Technion) "*The Impact of Urbanization and Land Use Changes on Biodiversity at Urban Edges.*" Graduated June 2016
7. Yonathan Almagor, Porter School of Environmental Science, 2009, (Co-supervising with Dr. Nurit Alfasi, BGU), "*The role of developers in city dynamics: from the field studies to simulation modeling*" Graduated September 2017

##### Current

8. Yulia Grinblat, Porter School of Environmental Science, 2009, "*Land-use dynamics over the urban-agriculture-nature interface: from analysis and simulation to the environmental policies*"
9. Gennady Weizman, Porter School of Environmental Science, 2009, "*Modeling traffic Accidents*"
10. Yonatan Shaham, Porter School of Environmental Science, October 2014, "*Modeling urban fires*"
11. Nir Fulman, School of Geoscience, 2016, "Modeling urban parking prices"
12. Golan BenDor, School of Geoscience, 2017, "High-resolution modeling of urban traffic with MATSim"

#### G2. MA/MSc STUDENTS

##### Graduated

1. Adital Levi, Dept of Geography, "*Construction of the GIS for the investigation of the archaeological sites spatial distribution*," graduated February 1998
2. Erez Hatna, Dept of Geography, "*Agent-Based model of population residential dynamics in Yaffo, Tel-Aviv*" graduated November, 2000
3. Rahel Rodnitski, Dept of Geography, "*Comparative study of the street network morphology in the GIS framework*" graduated November 2002.
4. Sigal Mesika, Dept of Geography, "*Development of GIS for estimating fire risk in a forest*" graduated December 2003.
5. Ilanit Melamed, Dept of Geography, "*The use of local segregation measures for estimating spatial distribution of social phenomena*" graduated July, 2004

6. Dov Pash, Dept of Geography, "*Individual segregation in the city local environment,*" graduated March 2005
7. Slava Birfir, Dept of Geography, "*The model of parking search along the streets,*" graduated April 2005
8. Udi Or, Dept of Geography, "*High-resolution investigation of residential distribution in Israeli cities,*" graduated May, 2005
9. Anna Venitsianov, Dept of Geography, "*Development of spatially explicit high-resolution model of urban residential dynamics and its application for Modiin*", graduated February, 2007
10. Moti Zohar, Porter School, "*Spatial distribution of earthquakes in Mediterranean*", graduated February, 2007
11. Adi Vitman, Dept of Geography, "*The Influence of the Geographic Location on Development of Non-Agricultural Businesses in Israeli Kibbutzim*" graduated April, 2007
12. Yonatan Almagor, Dept of Geography, "*Study of the land-use dynamics versus development programs, the examples of the Arab settlements Sachnin and Tamra*", graduated June, 2009, Co-supervising with Dr. Nurit Alfasi, BGU
13. Natalin Bergman, Dept of Geography, BGU, "*The meaning of tolerant behavior in process of urban renewal*", graduated September 2009, Co-supervising with Dr. Nurit Alfasi, BGU
14. Iddo Porat, Dept of Geography, BGU, "*Long-term planning versus local factors in regional development*", graduated March 2009, Co-supervising with Dr. Nurit Alfasi, BGU
15. Ariela Kwartler, Dept of Geography, "*Development of GIS-based methodology for estimating accessibility by means of public transport*", graduated November 2010
16. Nadav Levy, Dept of Geography, "*Development of the model of drivers' parking behavior and cruising for parking in the city*", graduated December 2010
17. Igor Aksinenko, Dept of Geography, "*Field studies of the drivers' parking behavior*", graduated July 2011
18. Tiferet Zilberman, Porter School Environment Sciences, "*Vulnerability of the Northern Negev landscapes*", Graduated September, 2012, Co-supervising with Dr. Giora Kidron, TAU
19. Uzi Shamir, Dept of Geography, "*Effects of artificial water sources on distribution patterns of desert-dwelling bat species in the Negev and Judea deserts*", Graduated October 2012
20. David Tal, Dept of Geography, "*Development of the web-based catalog and search engine for the library of historical maps*", Graduated November 2012
21. Idan Hauz, Dept of Geography, BGU, "*Urban dynamics in Arab towns in Israel Demonstration on Sakhnin*", Graduated March 2013, Co-supervising with Dr. Nurit Alfasi, BGU
22. Asaf Bar-Yosef, Porter School, "*Vicious loop of public transportation dynamics*", Graduated 2013, Co-supervising with Prof Yoram Shiftan, Technion and Prof Katel Martens, Radboud Univ, Nijmegen, Holland
23. Omer Ben-Asher, Dept of Geography, "*The factors and feedbacks affecting Bedouin agriculture in the Negev*", Co-supervising with Dr. Giora Kidron, TAU, Graduated July 2013
24. Lucia Bergovoy Yellin, Porter School, "*Short-Term Effects of Air Pollution on Health*", Co-supervising with Dr. Chava Peretz, and Dr. Judith Shaham, TAU, Graduated May 2014
25. Amit Rosental, Porter School, "*Construction of high-resolution accessibility maps for the public transport*," graduated December 2014
26. Nitzan Neeman, Dept of Engineering, TAU, since 2012, "*GIS model of urban runoff*", graduated May 2016

27. Einat Sharon, Porter School of environmental Science, since 2014, "Land-use dynamics in the agriculture settlements of Sharon area during 1965 – 2008" graduated April 2017

Current

1. Golan Ben-Dor, since 2017 "MATSim model for Tel Aviv metropolitan"
2. Liad Zivion, since 2017 "Analysis of Israeli PT Smart Cars data"
3. Ayelet Rotem, since 2018, "Visualization of the PT Smart Card data"

PUBLICATIONS (♠ - in Russian with English summary)

#### A. BOOKS and MONOGRAPHS

1. ♠V.N. Bolshakov, V.S. Balakhonov, I.E. Benenson, et al., 1986, *Small mammals of the Urals mountains*, Sverdlovsk, Urals Branch AS USSR, 101 p
2. ♠O.F. Sadykov, I.E. Benenson 1992, *Population Dynamics of Small Mammals: Concepts, Hypothesis, Models*, Moscow, Nauka, 191 p
3. Itzhak Benenson, Paul M. Torrens, 2004, *Geosimulation: Automata-Based Modeling of Urban Phenomena*, London, Wiley, 320 p
4. נ. אטמור, י. בנסון, א. דיסקין, ו. חרבש, 2009, בחירות אזוריות בישראל, מכון ון ליר, 84 עמ'
5. Danielle J. Marceau, Itzhak Benenson (Editors), 2011, *Advanced Geosimulation Models*, Bentham Science Publishers, Hilversum, The Netherlands, <http://www.benthamscience.com/ebooks/9781608052226/index.htm>
6. Daniel Czamanski, Itzhak Benenson, Daniel Malkinson (Editors), 2014, "Modeling of Land-Use and Ecological Dynamics", Springer-Verlag, 220 p, ISBN-13: 9783642401985, <http://www.springer.com/us/book/9783642401985>
7. Igor Ivan, Itzhak Benenson, Bin Jiang, Jiri Horak, James Haworth, Tomas Inspector (Editors), 2014, *Geoinformatics for Intelligent Transportation*, Lecture Notes in Geoinformation and Cartography, Springer-Verlag, 272 pp, ISSN 1863-2351, <http://www.springer.com/us/book/9783319114620>

#### A. REFERED ARTICLES

8. ♠E.A. Gileva, V.N. Bolshakov, I.E. Benenson, 1979, On the relation between chromosome and morphological variability, *Journal of General Biology*, **40**(6), 889-897.
9. ♠I.E. Benenson, 1979, On quasi-manifolds of the models, *Izvestia Vuzov series Mathematics*, N12, 14-20.
10. ♠E.A. Gileva, A.V. Pokrovsky, I.E. Benenson, 1980, Analysis of aberrant sex ratio and postnatal mortality for two subspecies of varying lemming, *Soviet J of Ecology*, N6, 100-105.
11. L.A. Dobrinskaya, I.E. Benenson, 1981, Variability and relations of morpho-metrical characters of fishes, *Soviet J of Ecology*, N4, 1981, 59-66.
12. I.E. Benenson, O.A. Zhigalsky, 1982, The dependence of demographic parameters on density as reason of vole numbers fluctuations, *Soviet J of Ecology*, N3, 56-62.
13. E.A. Gileva, I.E. Benenson, L.A. Konopistseva et al., 1982, XO Females in the varying lemming *Dicrostonyx torquatus*: reproductive performance and its evolutionary significance, *Evolution*, **36**(3), 601-609.
14. I.E. Benenson, 1983, On the maintenance of the unique system of sex determination in lemmings, *Oikos* **43**(2), 211-218.
15. ♠N.S. Gashev, I.E. Benenson, 1985, Dynamics of island population of bank vole based on Jolly-Seber estimates of population parameters. Survival, *Journal of General Biology*, **46**(1), 124-133.
16. ♠V.E. Sokolov, V.S. Gromov, I.E. Benenson, 1985, Multivariate analysis of morphometrical characters of deer's bones, *Proceeding of Soviet Academy of Sciences*, **228**(2), 501-503.

17. <sup>5</sup>M.S. Shliapnikova, I.E. Benenson, 1985, Studies of growth of Clethrionomys voles in captivity, *Journal of General Biology*, **46**(6), 838-850.
18. <sup>5</sup>V.E. Sokolov, V.S. Gromov, I.E. Benenson, 1986, Comparison of craniological characters of two geographical forms *Capreolus capreolus* L., *Izvestia Academy of Sciences of the USSR*, N1, 85-96.
19. <sup>5</sup>I.E. Benenson, V.N. Bolshakov, N.S. Korytin, 1988, Simulation model of predator dynamics for different levels of exploitation, *Proceedings of Soviet Academy of Sciences*, **301**(5), 1269-1273.
20. <sup>5</sup>N.S. Korytin, F.V. Kryazhinsky, I.E. Benenson, 1989, Studies of Red Fox (*Vulpes vulpes* L.) population dynamics based on mathematical model, *Journal of General Biology*, **50**(1), 60-71.
21. <sup>5</sup>I.E. Benenson, O.F. Sadykov, 1989, The concept and the model of small mammals population dynamics in heterogeneous environment, *Journal of General Biology* **50**(2), 244-259.
22. R.A. Aps, I.E. Benenson, O.A. Makhaniok, 1989, Development, stock and fishery of sprat in the Northern Baltic in 1950 – 1987, *Fischerei-Forschung*, **27**(2), 45-49.
23. J. Portugali, I. Benenson, I. Omer 1994, Socio-spatial Residential Dynamics: Stability and Instability within a Self-Organized City, *Geographical Analysis*, **26**(4) 321-340.
24. J. Portugali, I. Benenson, 1995, Artificial Planning Experience by Means of a Heuristic Cell-Space Model: Simulating International Migration in the Urban Process. *Environment and Planning A*, **27**, 1647-1665.
25. J. Portugali, I. Benenson, I. Omer, 1997, Spatial Cognitive Dissonance and Socio-Spatial Emergence in a Self-Organizing City, *Environment and Planning B*, **24**, 263-285
26. I. Benenson, M. Sofer, I. 1998, Schnell Analysis of Economic Networks: Geographical Information Systems as a Visualization Tool, *Journal of Applied Geography*, **18**(2), 117-135.
27. I. Benenson, 1998, Multi-Agent Simulations of Residential Dynamics in the City, *Computers, Environment and Urban Systems*, **22**(1), 25 - 42.
28. I. Schnell, I. Benenson, M. Sofer, 1999, The Formation of an Arab Industrial Sales Network in Israel, *Annals of Association of American Geographers*, **89**(2), 312-337.
29. I. Benenson, 1999. Modeling population dynamics in the city: from a regional to a multi-agent approach. *Discrete Dynamics in Nature and Society* **3**, 149-170.
30. I. Benenson, I. Omer, E. Hatna, 2002, Entity-based modeling of urban residential dynamics - the case of Yaffo, Tel-Aviv. *Environment and Planning B*, **29**, 491-512.
31. I. Omer, I. Benenson, Investigating Fine-Scale Residential Segregation, by Means of Local Spatial Statistics, *Geographical Research Forum*, 2002, **12**, 41-60
32. I. Benenson, I. Omer, 2003, High-resolution Census data: a simple way to make them useful, *Data Science Journal* **2**(26): 117-127.
33. י. בננסון, י. אומר, 2003, הטרוגניות של תפרוסת המגורים בעיר: מבט ברזולוציה גבוהה, *מרחבים*, **5**, 9-22
34. I. Benenson, P. Torrens, 2004, Geosimulation – object-based modeling of urban systems, *Computers, Environment and Urban Systems*, **28**(1/2), 1-8
35. I. Benenson, S. Aronovich, S. Noam, 2005, Let's talk objects: Generic approach to high-resolution urban modeling, *Computers, Environment and Urban Systems*, **29**, 425 - 453
36. P. Torrens, I. Benenson, 2005, Geographic Automata Systems and Urban Simulation, *International Journal of Geographic Information Systems*, **19**, **N4**, 385–412
37. R. Peled, H. Reuveni, J. S. Pliskin, I. Benenson, E Hatna, A. Tal, 2006, Defining localities of inadequate treatment for childhood asthma: A GIS approach, *International Journal of Health Geographics*, **5**(3), p. 1-9.
38. E. Zapassky, I. Finkelstein, I. Benenson (corresponding author), 2006, Ancient Standards of Volume: Negevite Iron Age pottery (Israel) as a Case Study in 3D Modeling, *Journal of Archaeological Science*, **33**, 1734 – 1743

39. י. בננסון, י. אומר, א. חטנה, 2006, "גיאומטריות של דינאמיקה עירונית", *תכנון*, **14**, 121 - 141

40. I Benenson, 2007, WARNING! The scale of the cellular Automata is Changed, *Computers, Environment and Urban Systems*, **31**, 107-113
41. E. Hatna, I. Benenson, 2007, Building a City *in vitro*: The Experiment and the Simulation Model, *Environment and Planning B*, **34**, 687 – 707
42. I. Benenson, K. Martens, 2008, From modeling parking search to establishing urban policy, *Künstliche Intelligenz*, **3**, p. 3-8
43. K. Martens, I. Benenson, 2008 Evaluating urban parking policies using an Agent-Based model of driver parking behavior, *Transportation Research Records: Journal of the Transportation Research Board*: N2046, 37-44
44. I. Benenson, K. Martens and Birfir, S. 2008, "PARKAGENT: an agent-based model for parking in the city", *Computers, Environment and Urban Systems*, **32**, 431–439
45. E. Zapassky, I. Finkelstein and I. Benenson (corresponding author), 2009, Computing abilities in antiquity: The royal judahite storage jars as a case-study, *Journal of Archaeological Methods and Theory*, **16**(1), 51-67
46. D. Czamanski, I. Benenson, D. Malkinson, et al, 2008, Urban sprawl and ecosystems – can nature survive? *International Review of Environmental and Resource Economics*, **2**, 321-366
47. T. Svoray and I. Benenson, 2009, Scale and validity of environmental microsimulation, *Ecological Complexity*, **6**, 77–79
48. I. Benenson, E. Hatna and E. Or, 2009, From Schelling to Spatially Explicit Modeling of Urban Ethnic and Economic Residential Dynamics, *Sociological Methods and Research*, **37**, 463-497
49. G. J. Kidron, A. Karnieli and I. Benenson (corresponding author), 2010, Predicting soil degradation following cycles of cotton-cereal cultivation in Mali, West Africa, *Soil and Tillage Research*, **106**, 254–262
50. שלומית פלינט, נורית אלפסי, יצחק בנסון, 2010, דומים ושונים: מיקרו-סגרגציה של חרדים במרכז ירושלים, סוציולוגיה ישראלית, **12**(1), 81 - 110
51. I. Benenson, K. Martens, Y. Rofé and A. Kwartler, 2010, Measuring the Gap Between Car and Transit Accessibility Estimating Access Using a High-Resolution Transit Network Geographic Information System, *Transportation Research Record: Journal of the Transportation Research Board*, N2144, 28–35
52. I. Benenson, K. Martens, Y. Rofé and A. Kwartler, 2011, Public transport versus private car: GIS-based estimation of accessibility applied to the Tel Aviv metropolitan area, *Annals of Regional Science*, **47**:499–515
53. I. Benenson and E. Hatna, 2011, Minority–Majority Relations in the Schelling Model of Residential Dynamics – overlooked effects, *Geographical Analysis*, **42**(3), 287–305
54. I. Finkelstein, E. Zapassky, Y. Gadot, D. M. Master, L. E. Stager, I. Benenson (corresponding author), 2011, Phoenician “Torpedo” Storage Jars and Egypt: Standardization of Volume Based on Linear Dimensions, *Egypt and The Levant*, **21**, 249-259
55. E. Hatna, I. Benenson, 2012, The Schelling Model of Ethnic Residential Dynamics: Beyond the Integrated - Segregated Dichotomy of Patterns, *JASSS*, **15**(1), 6
56. N. Alfasi, J. Almagor, I. Benenson, 2012, The actual impact of comprehensive land-use plans: Insights from high resolution observations, *Land Use Policy*, **29**(4) 862 – 877
57. I. Finkelstein, E. Zapassky, Y. Gadot, I. Benenson (corresponding author), 2012, A Lost Wisdom of Relation Between Units of Length and Volume, *PLoS ONE* **7**(3):e33895. doi:10.1371/journal.pone.0033895
58. S. Flint, I. Benenson, N. Alfasi, 2012, Between Friends and Strangers: Residential Dynamics in a Haredi Neighborhood in Jerusalem, *City & Community*, **11**(2), 171 - 197
59. N. Alfasi, S. Flint, I. Benenson, 2012, Between the individual and the community: Residential

patterns of the Haredi population in Jerusalem, *International Journal of Urban and Regional Research*, 37(6), 2152–76

60. N. Levy, K. Martens, I. Benenson (corresponding author), 2013, Exploring Cruising for On-Street Parking Using Agent-Based and Analytical Models, *Transportmetrica A: Transport Science*, 9 (9), 773–797
61. A. Bar-Yosef, K. Martens, I. Benenson (corresponding author), 2013, A model of the vicious cycle of a bus line, *Transportation Research Part B*, 54, 37–50
62. G Kidron, I. Benenson, 2014, Biocrusts serve as biomarkers for the upper 30 cm soil water content, *Journal of Hydrology*, 509, 398–405
63. A. Farhi, V. Boyko; Y. Almagor; I. Benenson; E. Segre; Y. Rudich; E. Stern; L. Lerner-Geva, 2014, The possible association between exposure to air pollution and the risk for congenital malformations, *Environmental Research*, 135, 173–180
64. G. Waizman S. Shoval, I. Benenson (corresponding author), 2015, Micro-Simulation Model for Assessing the Risk of Vehicle-Pedestrian Road Accidents, *Journal of Intelligent Transportation Systems*, 19(1), p 63–77
65. Y. Grinblat, G. J. Kidron, A. Karnieli, I. Benenson (corresponding author), 2015, Simulating land-use degradation in West Africa with the ALADYN model, *Journal of Arid Environment*, 112, 52–63
66. Levy, N., Render, M., I. Benenson (corresponding author), 2015, Spatially Explicit Modeling of Parking Search as a Tool for Urban Parking Facilities and Policy Assessment. *Transport Policy*, 39 p 9-20
67. Levy, N., Benenson, I. (corresponding author), 2015, GIS-based Method for Assessing City Parking Patterns, *Journal of Transport Geography*, 46, 220–231  
<http://dx.doi.org/10.1016/j.jtrangeo.2015.06.015>
68. Schnell, I., Diab A., Benenson, I. 2015 A global index for measuring socio-spatial segregation versus integration, *Applied Geography*, 58, 179-188
69. E. Hatna, I. Benenson, 2015, Combining segregation and integration: Schelling model dynamics for heterogeneous population, *Journal of Artificial Societies and Social Simulation*, v18 n4, paper 15, <http://jasss.soc.surrey.ac.uk/18/4/15.html>
70. M. Toger, D. Malkinson, I. Benenson, D. Czamanski, 2016, The nature of the Haifa urban open space network, *Environment and Planning B*, doi:10.1177/0265813515598991
71. Grinblat, Y., Gilichinski, M., Benenson, I., (corresponding author), 2016, What are the Probabilities of Land-Use Transitions? The Answer Depends on the Classification Method, *AAAG*, v106(6), 1299-1320, <http://dx.doi.org/10.1080/24694452.2016.1213154>
72. J. Almagor, I. Benenson, N. Alfasi, 2016, Assessing innovation: Dynamics of high-rise development in an Israeli city, *Environment and Planning B: Planning and Design*, DOI:10.1177/0265813516671311
73. Itzhak Benenson, Eran Ben-Elia, Yodan Rofé & Dmitry Geyzersky 2017, The benefits of a high-resolution analysis of transit accessibility, *International Journal of Geographical Information Science*, 31:2, 213 – 236, <http://dx.doi.org/10.1080/13658816.2016.1191637>
74. N. Fulman, I. Benenson, 2017, Simulating parking for establishing parking prices, *Procedia Computer Science* 109C, 911–916
75. M. Toger, I. Benenson, Y. Wang, D. Malkinson, D. Czamanski, 2018, Pigs in space: an agent-based model of the penetration of wild boars into cities, *Environment and Urban Planning*, 173, 70-80
76. Y. Shaham, I Benenson, 2018, Modeling fire spread in cities with non-flammable construction, *International Journal of Disaster Risk Reduction*, <https://doi.org/10.1016/j.ijdrr.2018.03.010>
77. J. Almagor, Temkin E, Benenson I, Fallach N, Carmeli Y, on behalf of the DRIVE-AB consortium, 2018, The impact of antibiotic use on transmission of resistant bacteria in hospitals: Insights from an agent-based model, *PLoS ONE* 13(5): e0197111, <https://doi.org/10.1371/journal.pone.0197111>
78. G. Waizman, S. Shoval, I. Benenson, 2018, Traffic accident risk assessment with dynamic

ACCEPTED

1. N. Fulman, I. Benenson, 2018, Establishing Heterogeneous Parking Prices for Uniform Parking Availability for Autonomous and Human-Driven Vehicles, *IEEE Intelligent Transportation Systems Magazine*, forthcoming

REFEREED ARTICLES IN BOOKS

1. <sup>§</sup>N.G. Smirnov, I.E. Benenson, B.V. Popov, 1979, Application of biometrics methods for studying sub-fossil materials, In: V.E. Sokolov, L.G. Denisman (eds), *Special methods of studying history of modern ecosystems*, Moscow, Nauka, 223-238.
2. <sup>§</sup>S.E. Rybtsov, I.E. Benenson, 1979, Differences between Arctic foxes at several density levels during two population cycles, In: V.S. Bezel (ed), *Quantitative methods in ecology*, Sverdlovsk, Urals Branch AS USSR, 88-93.
3. <sup>§</sup>E.A. Gileva, I.E. Benenson, V.N. Bolshakov, 1980, Population role of genetically determined sex ratio shift in varying lemming, In: G.P. Krasnoschiokov (ed) *Mechanisms of numbers regulation in lemming and voles at Far North*, Vladivostok, Eastern Branch AS USSR, 36-41.
4. <sup>§</sup>N.G. Smirnov, I.E. Benenson, 1980, Studies of variability of M1 tooth surface of *Arvicola terrestris* L., based on canonical variable analysis, In: S.E. Rybtsov (ed) *Inter- and between-population variability of Urals mammals*, Sverdlovsk, Urals Branch AS USSR, 11-17.
5. <sup>§</sup>E.A. Gileva, V.N. Bolshakov, I.E. Benenson, 1980, Variability of craniological characters of two subspecies of varying lemming, In: S.E. Rybtsov (ed) *Inter- and between-population variability of Urals mammals*, Sverdlovsk, Urals Branch AS USSR, 18-37.
6. <sup>§</sup>L.N. Dobrinskaya, G.I. Ogurtsov, I.E. Benenson, 1982, Variability of morpho-physiological characteristics of the one-year fishes In: L.N. Dobrinskaya (ed) *Variability of morpho-physiological characteristics of fishes*, Sverdlovsk, Urals Branch AS USSR, 19-33.
7. <sup>§</sup>I.E. Benenson, 1984, On sex ratio in structured population, In: L.N. Dobrinsky (ed.) *Population ecology and morphology of mammals*, Sverdlovsk, Urals Branch AS USSR, 113-117.
8. <sup>§</sup>O.F. Sadykov, I.E. Benenson, 1985, Actual problems of small mammals population dynamics modeling, In: I.L. Kulikova (ed), *Modeling of small mammals population dynamics*, Sverdlovsk, Urals Branch AS USSR, 3-35.
9. <sup>§</sup>I.E. Benenson, O.F. Sadykov, 1985, Spatial simulation model of Red vole population dynamics, In: I.L. Kulikova (ed), *Modeling of small mammals population dynamics*, Sverdlovsk, Urals Branch AS USSR, 56-87.
10. <sup>§</sup>V.S. Bezel, I.E. Benenson, O.F. Sadykov, 1986, An influence of environment pollution on small mammals' population dynamics in heterogeneous environment, In: B.V. Popov, O.F. Sadykov (eds.) *Technogeneous elements and animals*, Sverdlovsk, Urals Branch AS USSR, 37-42.
11. <sup>§</sup>I.E. Benenson, 1987, Density-dependence regulation and numbers fluctuations of small mammals, In: V.Y. Frisman (ed.) *Mathematical modeling of ecological processes*, Vladivostok, Eastern Branch AS USSR, 6-31.
12. <sup>§</sup>V.N. Bolshakov, O.F. Sadykov, I.E. Benenson, 1987, Vital problems of population monitoring, In: Y.A. Izrael (ed.) *Problems of ecological monitoring and ecosystem modeling*, Leningrad, Gidrometeoizdat, **10**, 47-63.
13. <sup>§</sup>F.V. Kryazhimsky, I.E. Benenson, N.S. Korytin, 1988, The model of exploited population of predators, In: *Mathematical modeling of complex biological systems*, Moscow, Nauka, 98-109.



14. J. Portugali, I. Benenson, 1994, Competing Order Parameters in a Self-Organizing City. In: G.O.Braun (ed.), *Managing and Marketing of Urban Developments and Urban Life*, Dietrich Reimer Verlag, Berlin 669-681.
15. I. Benenson, J. Portugali, 1995, Internal vs. External Spatial Information and Cultural Emergence in a Self-Organizing City. In: A. F. Frank, W. Kuhn (eds), *Spatial Information theory. A theoretical Basis for GIS*. Lecture Notes in Computer Science, 988, Springer, Berlin, 431-441.
16. J. Portugali, I. Benenson, 1996, Human agents between local and global forces in a self-organizing city. In F. Schweitzer (ed.), *Self-Organization of Complex Structures: from Individual to Collective Dynamics*, Gordon and Breach, London, 537-546.
17. I. Benenson, I. Schnell, M. Sofer, 1996, Interactive expansion of economic network into components: Arab industry in Israel as an example. In: M. Rumor, R. McMillan, H.F.L. Ottens (eds.), *Geographical Information: From Research to Application through Cooperation*, IOS Press, Amsterdam, 708-711.
18. I. Finkelstein, Z. Leiderman, S. Bunimovich and I. Benenson, 1997, Description of Sites, In: I. Finkelstein (ed.), *Highlands of Many Cultures. The Southern Samaria Survey. The Sites*, Monograph Series of the Institute of Archaeology, Tel-Aviv University, 131-857.
19. I. Benenson, I. Finkelstein, 1999, The Megiddo Excavation Database Management System. In: *Monograph Series of the Institute of Archaeology*, Tel-Aviv University, N15, 14-25.
20. J. Portugali, I. Benenson, I. Omer, 2000, Chapter 5: City: The Greens and the Blues, In: J. Portugali, *Self-Organization and the City*, Springer, Berlin, 2000, 95-120.
21. J. Portugali, I. Benenson, 2000, Chapter 6: International Migration and the Internal Structure of Cities In: J. Portugali, *Self-Organization and the City*, Springer, Berlin, 121-140.
22. J. Portugali, I. Benenson, I. Omer, 2000, Chapter 7: Spatial Cognitive Dissonance and Socio-Spatial Emergence in a Self-Organizing City, In: J. Portugali, *Self-Organization and the City*, Springer, Berlin, 141-173.
23. J. Portugali, I. Benenson, 2000, Chapter 8: Individuals' cultural code and residential self-organization in the city In: J. Portugali, *Self-Organization and the City*, Springer, Berlin, 174-189.
24. I. Benenson, J. Portugali, 2000, Chapter 9: Agent-based simulations of a city dynamics in a GIS environment In: J. Portugali, *Self-Organization and the City*, Springer, Berlin, 190-200
25. J. Portugali, I. Benenson, 2000, Chapter 12: Artificial Planning Experience, In: J. Portugali, *Self-Organization and the City*, Springer, Berlin, 251-258.
26. I. Benenson, E. Hatna, I. Omer, 2000, Modeling Human Residential Behavior, in J. Saslukvadze, (ed) *Society and Geography*, Tbilisi, SANI Publishing, 116-137
27. M. Sofer, I. Benenson, I. Schnell, 2001, Ethnic minorities' strategies for Market Formation: The Israeli Arab Case. In: Taylor M., Felsenstein G. (eds) *Industrial Geography*, 183-208.
28. I. Benenson, I. Omer, 2002, Measuring Individual Segregation in Space - A Formal Approach and Case Study. In: I. Schnell, W. Ostendorf (eds.), *Studies in Segregation and Desegregation*, Avebury, 11-38.
29. I. Benenson, I. Omer, E. Hatna, 2003, Agent-Based Modeling of Householders' Migration Behavior and its Consequences, In: Bilary F.C., Prskawetz, A. (eds.) *Agent-Based Computational Demography: Using Simulation to Improve Our Understanding of Demographic Behavior*, Springer, 97-116
30. I. Benenson, 2004, Agent-Based Modeling: From Individual Residential Choice to Urban Residential Dynamics, In M. F. Goodchild, D. G. Janelle (eds.) *Spatially Integrated Social Science: Examples in Best Practice*, Oxford University Press, 67-95
31. I. Benenson, P. Torrens, 2005, Chapter 23: A Minimal Prototype for Integrating GIS and Geographic Simulation through Geographic Automata Systems, in P. Atkinson, F. Wu (eds), *Geodynamics*, CRC Press, 347 – 367
32. I. Benenson, S. Birfur, V. Kharbash, 2005, Geographic Automata Systems and the OBEUS software for their implementation, In J. Portugali, (ed), *Complex artificial environments*, Springer, 137-153

33. E. Zapasski, I. Benenson, 2006, Chapter 2: Megiddo Database Next Step: Megiddo Geographic Information System, in I. Finkelstein, B. Halpern and D. Ussishkin (eds.), *Megiddo IV, 1998 – 2002 excavations*, Tel-Aviv University, pp. 19-26
34. E. Hatna, I. Benenson, 2007, Study of Urban Developers' Behavior in a Game Environment, In: Albeverio S.; Andrey D.; Giordano P.; Vancheri A. (Eds.), *The Dynamics of Complex Urban Systems. An Interdisciplinary Approach*, Springer, Berlin Heidelberg New York, 265-286
35. K. Martens, I. Benenson, N. Levy, 2010, The Dilemma of On-Street Parking Policy: Exploring Cruising for Parking Using an Agent-Based Model, In B. Jiang, X. Yao (eds.), *Geospatial Analysis and Modelling of Urban Structure and Dynamics*, GeoJournal Library 99, Springer Science Business Media B.V., pp. 121-138
36. D. J. Marceau, I. Benenson, 2011, Challenges and Perspectives in Geosimulation, in D. J. Marceau, I. Benenson, (Eds), *Advanced Geosimulation Models*, Bentham, p. 3-14
37. E. Hatna, I. Benenson, 2011, Geosimulation of Income-Based Urban Residential Patterns, in D. J. Marceau, I. Benenson, (Eds), *Advanced Geosimulation Models*, Bentham, p. 111-126
38. I. Benenson, 2014, Agent-Based Modeling, in B. Abraham, L. See (Eds) *Geocomputation*, 2nd ed, Taylor&Francis, Chapter 9, p. 204-239
39. Almagor, J., Benenson, I, Czamanski, D., 2017, The Evolution of the Land Development Industry: An Agent-Based Simulation Model in M. Behnisch, G. Meinel (Eds), *Trends in Spatial Analysis and Modelling*, Springer, p 93-120

#### PUBLICATIONS ON INTERNET

1. I. Benenson, E. Hatna, 2009, The Third State of the Schelling Model of Residential Dynamics, [arXiv:0910.2414v1](https://arxiv.org/abs/0910.2414v1) [physics.soc-ph], 41p.
2. A. Bar-Yosef, K. Martens, I. Benenson (corresponding), 2012, A model of the vicious cycle of a bus line, <http://arxiv.org/abs/1210.4198> [physics.soc-ph], 25p
3. E. Hatna, I. Benenson, 2014, Combining segregation and integration: Schelling model dynamics for heterogeneous population <http://arxiv.org/abs/1406.5215> [physics.soc-ph], 28 p
4. N. Fulman, I. Benenson, 2016, An algorithm and software for establishing heterogeneous parking prices, <https://arxiv.org/abs/1610.08890>, arXiv:1610.08890 [physics.soc-ph], 23 p

#### E. PAPERS PRESENTED AT SCIENTIFIC MEETINGS PUBLISHED IN PROCEEDINGS

1. <sup>5</sup>V.A. Orlov, I.E. Benenson, Zavyalova S. V., Obridko I., V., D.A. Sarancha, 1984 On lemming dynamics modeling, In: *Proceedings of MOIP*, Moscow, Nauka, p. 142-145.
2. R.A. Aps, I.E. Benenson, N.S. Korytin, 1987, Spatial model of the Baltic Sea sprat population dynamics, *ICES, Baltic Sea Committee*, C.M. 1987/J:16, 1987, 18 p.
3. R.A. Aps, I.E. Benenson, A.O. Makhaniok, 1988, Effect of temperature and salinity on sprat stocks recruitment in the Northern Baltic, In: *ICES Early History Symposium*, Bergen, paper N8, 1-18.
4. R.A. Aps, I.E. Benenson, O.A. Makhaniok, 1988, Fishery and sprat stock dynamics in the Northern Baltic in 1950 – 1987, *ICES, Baltic Sea Committee*, C.M. 1988/J:13, 1988, 14p.
5. N. Korytin, V. Bolshakov, I. Benenson, 1992, A Rational Strategy of Exploitation of Red Fox Population with Multiple Equilibrium States, In: B. Bobek (ed.) *“Proceedings of the 18th IUGB Congress”*, Warsaw, 302-306
6. J. Portugali, I. Benenson, Individual's cultural code and residential self-organization in the city space, In: R.T. Pascoe (ed.) *“GeoComputation 97, Proceedings of the Second Annual Conference”*, University of Otago, Dunedin, New Zealand, 1997, 297-308.

7. I. Benenson, J. Portugali, Agent-Based Simulations of a City Dynamics in a GIS Environment, In: S.C. Hirtle, A. U. Frank (eds.) *Spatial Information Theory: a Theoretical Basis for GIS*, Springer, Berlin, 1997, 501-502.
8. I. Benenson, I. Omer, 2000, Studies of Unique GIS of Israeli Population Census – High Resolution Urban Patterns and Individual Residential Segregation In: *Third AGILE Conference on GIS*, Helsinki/Espoo, 94-97
9. I. Benenson, I. Omer, 2000, Multi-scale approach to measuring residential segregation and the case of Yaffo, Tel-Aviv. In: R. Abraham (ed) *Proceedings of the Fifth Annual Conference on GeoComputation*, Manchester, GeoComputation CD-ROM available at <http://geocomp.gre.ac.uk/gc2000/index.htm>
10. I. Benenson, 2001, OBEUS: Object-Based Environment for Urban Simulation. In: *Sixth International Conference on GeoComputation*, University of Queensland, Brisbane, Australia, GeoComputation CD-ROM, available at <http://www.geocomputation.org/2001/papers/benenson.pdf>
11. I. Benenson, 2003, Geographic Automata Systems: a new paradigm for integrating GIS and geographic simulation. In: *Proceedings of the conference of the Association Geographic Information Laboratories Europe (AGILE)*, Lyons.
12. I. Benenson, V.Kharbash, 2005, Geographic Automata Systems: From the Paradigm to the Urban Modeling Software. In: *Proceedings of the 8<sup>th</sup> Conference on Geographic Information Science*, Estoril, Portugal
13. I. Benenson, K. Martens, S Birfir, 2008, Agent-Based Model of Driver Parking Behavior As a Tool for Urban Parking Policy Evaluation, In M. Wachowicz, L. Bodun (eds.) CD of *The Proceedings of the 10<sup>th</sup> conference of the Association Geographic Information Laboratories Europe (AGILE)*, Aalborg, Denmark, 91.pdf, and [http://www.plan.aau.dk/~enc/AGILE2007/PDF/91\\_PDF.pdf](http://www.plan.aau.dk/~enc/AGILE2007/PDF/91_PDF.pdf)
14. I. Benenson, K. Martens, 2008, Geosimulation of Parking in the City, In A. L.C. Bazan, F. Krugl, A. Ossowski (eds.) *Proceedings of the Seventh International Conference on Autonomous Agents and Multiagent Systems, Fifth International Workshop on Agents in Trasport and Transportation*, 29-35
15. I. Benenson, Y. Rofe, K. Martens, A. Kwartler, D. Khachaturian, 2009, Public Transport versus Private Car: Estimation of Accessibility in a Metropolitan Area, Short Paper, In CD of *The Proceedings of the 12<sup>th</sup> conference of the Association Geographic Information Laboratories Europe (AGILE)*, Hannover, Germany, 92.pdf
16. G. Waizman and I. Benenson, 2009, High-Resolution Modeling of Vehicle-Pedestrian Interactions for Estimating Pedestrian Risk at the Black Spots. Poster presentation, In CD of *The Proceedings of the 12<sup>th</sup> conference of the Association Geographic Information Laboratories Europe (AGILE)*, Hannover, Germany, 123.pdf
17. N. Fulman and I. Benenson, 2018, Agent-based Modeling for Transportation Planning: A Method for Estimating Parking Search Time Based on Demand and Supply, in *Proceedings of the Tenth International Workshop on Agents in Traffic and Transportation (ATT 2018)* Stockholm, Sweden, July 14, 2018, A. L. C. Bazzan, L. Crociani, I Dusparic, S. Ossowski (eds), <http://ceur-ws.org/Vol-2129/>, p. 31-39