Personal information

Name / Surname	**Zanlungo Francesco**
Address	Viale Bacchiglione 21, 20139, Milano, Italy; Salita Sant'Antonio 19, 90133, Palermo Italy
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Personal Email	zanlungo@atr.jp, francesco.zanlungo@gmail.com, francesco.zanlungo@unipa.it
Home page	https://zanlungo.github.io/
Nationality	Italian, Holder of Japanese permanent residence permit
Date of birth	10/03/1976
Gender	Male

Research keywords

Complex Systems Modelling, Crowd Behaviour, Simulations, Robotics

Professional experience

October 2024- Present	RTDB, (Tenure track Assistant Professor) Palermo University, Palermo, Italy
October 2022 -	Contract consultant Standard AI, San Francisco, US
October 2021 -February 2024	Contract lecturer Okayama University, Okayama, Japan
April 2021 - September 2024	Lecturer International Professional University of Technology, Osaka, Japan Permanent position
April 2020 - June 2024	Part time researcher Okayama University, Okayama, Japan
April 2017-March 2020 June 2020-Present	Collaborative researcher Intelligent Robotics and Communication Laboratories, ATR, Kyoto, Japan

November 2016-March 2017	Researcher Intelligent Robotics and Communication Laboratories, ATR, Kyoto, Japan
2015-2016	Lecturer in Applied Mathematics Kingston University, London, UK Faculty of Science, Engineering and Computing, School of Computer Science and Mathematics Tenured position
2009-2015	Researcher Intelligent Robotics and Communication Laboratories, ATR, Kyoto, Japan
November 2008 and September 2009	Visiting researcher CPT (Theoretical Physics Center), Marseilles, France Collaboration with Prof. Sandro Vaienti
2008	Instructor Milan Polytechnic University Teaching Introductory course of Mathematics (“College Algebra”)
2007-2009	Post-doctoral researcher University of Bologna Analysis of the effect of random noise and numerical round-off on discrete maps
June-September 2005	Visiting researcher Artificial Life Laboratory at Nagoya University Collaboration with Prof. Takaya Arita

Journal editing

From August 2018	Area Editor Simulation Modelling Practice and Theory, Elsevier

Professional experience outside research

2017-2024	Instructor of conversational Italian language Japan-Italy Society of Okayama

Education and training

2004-2007	Ph.D. course
Major	Theoretical Physics
Institution	Graduate school of Physics, University of Bologna, Italy
Graduation Thesis	Microscopic Dynamics of Artificial Life Systems, supervised by Prof. Giorgio Turchetti
2003	Japanese language education
Institution	Yamasa Language school, Okazaki-shi, Aichi-ken, Japan
2002	Italian Laurea in Physics *(The Italian “Laurea” is legally equivalent to a Master degree. To obtain the degree, the candidate was supposed to work on a one year Graduation Thesis project requiring original research.)*

Major	Theoretical Physics
Institution	University of Milan, Italy
Graduation Thesis	Studio numerico della cascata ultravioletta nel modello ϕ^4 classico (in Italian), supervised by Prof. Claudio Destri

Languages

Mother tongue: **Italian**

Self-assessment
European level(*)

	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user
Japanese(**)	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user
Spanish	C2 Proficient user	C2 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user
Portuguese	C1 Proficient user	C1 Proficient user	B2 Independent user	B2 Independent user	B1 Independent user
French	B2 Independent user	C1 Proficient user	B1 Independent user	B1 Independent user	A2 Basic user
Turkish	A2 Basic user	A2 Basic user	A2 Basic user	A1 Basic user	A2 Basic user
Mandarin Chinese	A1 Basic user	A2 Basic user	A1 Basic user	A1 Basic user	A2 Basic user

(*)Common European Framework of Reference (CEF) level

(**)Holder of first (highest) level of Japanese proficiency, approved in 2008

Home page: https://zanlungo.github.io/

Driving licence(s): B (cars)

Personal interests: Foreign languages, swimming, running, cycling, basketball, traveling, music, digital photography, books in general, my family.

Publications

Journal papers

1. A. Gregorj, Z. Yücel, F. Zanlungo, T. Kanda
Ecological data reveal imbalances in human–human collision avoidance due to dyads' social interaction
Transportation Research Part F: Traffic Psychology and Behaviour 109 (2025): 1313-1333

2. A. Gregorj, Z. Yücel, F. Zanlungo, C. Feliciani, T. Kanda
Social aspects of collision avoidance: a detailed analysis of two-person groups and individual pedestrians
Scientific reports 13.1 (2023): 5756.

3. F. Zanlungo, C. Feliciani, Z. Yücel, X. Jia, K. Nishinari, T. Kanda
A pure number to assess "congestion" in pedestrian crowds
Transportation Research Part C: Emerging Technologies 148, 104041, 2023
https://doi.org/10.1016/j.trc.2023.104041

4. F. Zanlungo, C. Feliciani, Z. Yücel, K. Nishinari, T. Kanda
Macroscopic and microscopic dynamics of a pedestrian cross-flow: Part II, modelling
Safety Science 158, 105969, 2023
https://doi.org/10.1016/j.ssci.2022.105969

5. F. Zanlungo, C. Feliciani, Z. Yücel, K. Nishinari, T. Kanda
Macroscopic and microscopic dynamics of a pedestrian cross-flow: Part I, experimental analysis
Safety Science 158, 105953, 2023
https://doi.org/10.1016/j.ssci.2022.105953

6. F. Zanlungo, Z. Yücel, T. Kanda
Intrinsic group behaviour II: On the dependence of triad spatial dynamics on social and personal features; and on the effect of social interaction on small group dynamics
PloS One, Vol 14, No 12, pp e0225704, 2019
doi: 10.1371/journal.pone.0225704

7. Z. Yücel, F. Zanlungo, C. Feliciani, Claudio, A. Gregorj, T. Kanda
Identification of social relation within pedestrian dyads
PloS One, Vol 14, No 10, pp e0223656, 2019
doi: 10.1371/journal.pone.0223656

8. 39 authors including F. Zanlungo
A Glossary for Research on Human Crowd Dynamics
Collective Dynamics, Vol. 4, pp. 1-13, 2019
doi: 10.17815/CD.2019.19

9. Z. Yücel, F. Zanlungo and M. Shiomi
Modeling the impact of interaction on pedestrian group motion
Advanced Robotics, Vol. 32, No 3, pp. 137-147, 2018
doi: 10.1080/01691864.2017.1421481

10. F. Zanlungo, Z. Yücel, D. Brščić, T. Kanda, N. Hagita
Intrinsic group behaviour: dependence of pedestrian dyad dynamics on principal social and personal features
Plos One 0187253, 2017

doi: 10.1371/journal.pone.0187253

11 F. Zanlungo, T. Kanda
A mesoscopic model for the effect of density on pedestrian group dynamics
Europhysics Letters, Vol. 111, No 3, pp. 38007, 2015
doi: 10.1209/0295-5075/111/38007

12 F. Zanlungo, D. Brščić, T. Kanda
Spatial-size scaling of pedestrian groups under growing density conditions
Physical Review E Vol. 91 No 6, pp. 062810, 2015
doi: 10.1103/PhysRevE.91.062810

13 M. Shiomi, F. Zanlungo, K. Hayashi , T. Kanda
Towards a Socially Acceptable Collision Avoidance for a Mobile Robot Navigating Among Pedestrians Using a Pedestrian Model
International Journal of Social Robotics, Vol. 6, No 3, pp 443-455, 2014
doi: 10.1007/s12369-014-0238-y

14 F. Zanlungo, T. Ikeda, T. Kanda
Potential for the dynamics of pedestrians in a socially interacting group
Physical Review E Vol. 89, No 1, pp. 012811, 2014
doi: 10.1103/PhysRevE.89.012811

15 Z. Yücel, F. Zanlungo, T. Ikeda, T. Miyashita, N. Hagita
Deciphering the crowd: Modeling and identification of pedestrian group motion
Sensors, Vol. 13, No. 1, pp. 875-897, 2013
doi: 10.3390/s130100875

16 F. Zanlungo, T. Ikeda, T. Kanda
A microscopic social norm model to obtain realistic macroscopic velocity and density pedestrian distributions
PLoS ONE Vol. 7, No 12, pp. e50720, 2012
doi: 10.1371/journal.pone.0050720

17 F. Zanlungo, T. Ikeda, T. Kanda
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Europhysics Letters, Vol. 93, No. 6, pp. 68005, 2011
doi: 10.1209/0295-5075/93/68005

18 G. Turchetti, S. Vaienti and F. Zanlungo
Asymptotic distribution of global errors in the numerical computations of dynamical systems
Physica A, Vol. 389, No 21, pp. 4994-5006, 2010
doi: 10.1016/j.physa.2010.06.060

19 G. Turchetti, S. Vaienti and F. Zanlungo
Relaxation to the asymptotic distribution of global errors due to round off
Europhysics Letters, Vol. 89, No 4, pp. 40006, 2010
doi: 10.1209/0295-5075/89/40006

20 P. Marie, G. Turchetti, S. Vaienti and F. Zanlungo
Error distribution in randomly perturbed orbits
Chaos: An Interdisciplinary Journal of Nonlinear Science, Vol. 19, No 4, pp. 043118, 2009
doi: 10.1063/1.3267510

21 F. Zanlungo, T. Arita, S. Rambaldi
Emergence of a traffic flow convention in a multiagent model
Advances in Complex Systems. Vol. 11, No 5, pp. 789-802, 2008
doi: 10.1142/S0219525908001921

22 G. Turchetti, F. Zanlungo, B. Giorgini
Dynamics and thermodynamics of a gas of automata
Europhysics Letters, Vol. 78, No 5, pp. 58003, 2007
doi: 10.1209/0295-5075/78/58003

23 F. Zanlungo
A collision avoiding mechanism based on a theory of mind
Advances in Complex Systems. Vol. 10 suppl. No. 2, pp. 363-371, 2007
doi: 10.1142/S0219525907001410

Book chapters

24 S. Tsujimoto, T. Kato, R. Kojima, K. Maeda, F. Zanlungo
Analysis of Autonomous Many-Body Particle Models from Geometric Perspective and Its Applications
Advanced Mathematical Science for Mobility Society, Springer Nature Singapore, 2024

25 F. Zanlungo, G. Turchetti, S. Rambaldi
An Automata Based Microscopic Model Inspired by Clonal Expansion
Mathematical Modeling of Biological Systems, Volume II. A. Deutsch et al. (eds.), Birkhäuser, Boston, pp. 133-144, 2008
doi: 10.1007/978-0-8176-4556-4_12

Conference papers

26 A. Gregorj, Z. Yücel, F. Zanlungo, T. Kanda
Asymmetries in group-individual collision avoidance due to social factors
Collective Dynamics, 9, 1-9

27 F. Zanlungo, Z. Yücel, C. Feliciani, K. Nishinari, T. Kanda
Congestion Number Analysis of Cross-Flow Dynamics: Experimental Data and Simulations
Collective Dynamics, 9, 1-8

28 F. Zanlungo, C. Feliciani,H. Murakami, Z. Yücel, X. Jia, K. Nishinari, T. Kanda
Density dependence of stripe formation in a cross-flow
International Conference on Traffic and Granular Flow (TGF 2022)
15-17 October 2022, Delhi, India

29 A. Gregorj, Z. Yčel, F. Zanlungo, T. Kanda
On the influence of group social interaction on intrusive behaviors
International Conference on Traffic and Granular Flow (TGF 2022)
15-17 October 2022, Delhi, India

30 F. Zanlungo, C. Feliciani, Z. Yčel, K. Nishinari, T. Kanda
Crowd congestion number
Pedestrian and Evacuation Dynamics, PED 2021
Dec 2021, Melbourne, Australia

31 A. Gregorj, Z. Yčel, F. Zanlungo, C. Feliciani, T. Kanda
On the influence of group social relation on the dynamics of pedestrians outside the group
Pedestrian and Evacuation Dynamics, PED 2021
Dec 2021, Melbourne, Australia

32 E. Repiso, F. Zanlungo, T. Kanda, A. Garrell, A. Sanfeliu
People's V-Formation and Side-by-Side Model Adapted to Accompany Groups of People by Social Robots
International Conference on Intelligent Robots and Systems 2019, pp. 2082-2088
Nov 4-8 2019, Macau, China
doi: 10.1109/IROS40897.2019.8968601

33 Z. Yücel, F. Zanlungo, T. Kanda
Gender profiling of pedestrian dyads
Traffic and Granular Flow Conference 2019, pp. 299-305
July 2-5 2019, Pamplona, Spain
doi: 10.1007/978-3-030-55973-1_37

34 F. Zanlungo, L. Crociani, Z. Yücel, T. Kanda
The effect of social groups on the dynamics of bi-directional pedestrian flow: a numerical study
Traffic and Granular Flow Conference 2019, pp. 307-313
July 2-5 2019, Pamplona, Spain
doi: 10.1007/978-3-030-55973-1_38

35 C. Feliciani, F. Zanlungo, K. Nishinari, T. Kanda
Thermodynamics of a gas of pedestrians: Theory and experiment
Pedestrian and Evacuation Conference 2018
Collective Dynamics, Vol 5, pp. 440-447, 2020
Aug 21-24 2018, Lund, Sweden
doi: 10.17815/CD.2020.97

36 Z. Yücel, F. Zanlungo, C. Feliciani, T. Kanda
Estimating social relation from trajectories
Pedestrian and Evacuation Conference 2018
Collective Dynamics, Vol 5, pp. 222-229, 2020
Aug 21-24 2018, Lund, Sweden
doi: 10.17815/CD.2020.54

37 F. Zanlungo, Z. Yücel, T. Kanda
Social group behaviour of triads. Dependence on purpose and gender
Pedestrian and Evacuation Conference 2018
Collective Dynamics, Vol 5, pp. 118-125, 2020
Aug 21-24 2018, Lund, Sweden
doi: 10.17815/CD.2020.90

38 F. Zanlungo, Z. Yücel, F. Ferreri, J. Even, L.Y. Morales Saiki, T. Kanda
Pedestrian models for robot motion
Pedestrian and Evacuation Conference 2018
Collective Dynamics, Vol 5, pp. 525-527, 2020
Aug 21-24 2018, Lund, Sweden
doi: 10.17815/CD.2020.90

39 Z. Yücel, F. Zanlungo and M. Shiomi
Walk the talk: Gestures in mobile interaction
International Conference on Social Robotics 2017, pp. 220-230
Nov 22-24 2017, Tsukuba, Japan
doi: 10.1007/978-3-319-70022-9_22

40 F. Zanlungo, Z. Yücel, F. Ferreri, J. Even, L.Y. Morales Saiki, T. Kanda

Social group motion in robots
International Conference on Social Robotics 2017, pp. 474-484, Tsukuba, Japan
doi: 10.1007/978-3-319-70022-9_47

41 D. Brščić, F. Zanlungo, T. Kanda
Modelling of Pedestrian groups and application to group recognition
40th International Convention on Information Information and Communication Technology, Electronics and Microelectronics (MIPRO), 2017, pp. 564-569, Opatija, Croatia
doi: 10.23919/MIPRO.2017.7973489

42 K. Kamei, F. Zanlungo, T. Kanda, Y. Horikawa, T. Miyashita, N. Hagita
Cloud networked robotics for social robotic services extending robotic functional service standards to support autonomous mobility system in social environments
International Conference on Ubiquitous Robots and Ambient Intelligence (URAI), 2017, pp. 897-902, Jeju, South Korea
doi: 10.1109/URAI.2017.7992862

43 F. Zanlungo, Z. Yücel, T. Kanda
The effect of social roles on group behaviour
Pedestrian and Evacuation Conference 2016, pp. 243-249, Hefei, China
doi: 10.17815/CD.2016.11

44 F. Zanlungo, D. Brščić, T. Kanda
Pedestrian group behaviour analysis under different density conditions
Pedestrian and Evacuation Conference 2014, Delft, Netherlands
Transportation Research Procedia Vol. 2, 149-158, 2014
doi: 10.1016/j.trpro.2014.09.020

45 D. Brščić, F. Zanlungo, T. Kanda
Density and velocity patterns during one year of pedestrian tracking
Pedestrian and Evacuation Conference 2014, Delft, Netherlands
Transportation Research Procedia 2, 77-86, 2014
doi: 10.1016/j.trpro.2014.09.011

46 F. Zanlungo, T. Kanda
Do walking pedestrians stabily interact inside a large group? Analysis of group and sub-group spatial structure
The annual meeting of cognitive science society (CogSci) 2013, Vol. 35, No. 35, pp. 3847-3852, Berlin, Germany

47 T. Ikeda, Y. Chigodo, D. Rea, F. Zanlungo, M. Shiomi, T. Kanda
Modeling and Prediction of Pedestrian Behavior based on the Sub-goal Concept
Robotics: Science and Systems (RSS) 2013, pp. 137-144, Sidney, Australia (acceptance rate 33%)
doi: 10.15607/RSS.2012.VIII.018

48 F. Zanlungo, Y. Chigodo, T. Ikeda, T. Kanda
Experimental study and modelling of pedestrian space occupation and motion pattern in a real world environment
Pedestrian and Evacuation Dynamics 2012, Zurich, Switzerland
Weidmann et al. (eds.), pp. 289-304, Springer, (published as a book in 2014)
doi: 10.1007/978-3-319-02447-9_24

49 M. Shiomi, F. Zanlungo, K. Hayashi, T. Kanda

A Framework with a Pedestrian Simulator for Deploying Robots into a Real Environment
International Conference on Simulation, Modeling, and Programming for Autonomous Robots 2012 (SIMPAR), pp. 185-196, (acceptance rate 35%)
doi: 10.1007/978-3-642-34327-8_19

50 Z. Yücel, F. Zanlungo, T. Ikeda, T. Miyashita, N. Hagita
Modeling Indicators of Coherent Motion
International Conference on Intelligent Robots and Systems (IROS) 2012, pp 2134–2140, Algarve, Portugal (acceptance rate 39%) 2012
doi: 10.1109/IROS.2012.6385744

51 M. D. Cooney, F. Zanlungo, S. Nishio, H. Ishiguro
Designing a Flying Humanoid Robot (FHR): Effects of Flight on Interactive Communication
International Symposium on Robot and Human Interactive Communication (IEEE RO-MAN) 2012, pp. 364-371, 2012, Paris, France
doi: 10.1109/ROMAN.2012.6343780

52 A. Bazzani, B. Giorgini, F. Zanlungo and S. Rambaldi
Cognitive Dynamics in an automata gas
Artificial Life and Evolutionary Computation, pp. 3-19, Wivace 2008, Venice, Italy
doi: 10.1142/9789814287456_0001

53 F. Zanlungo
Evolution of high level recursive thinking in a collision avoiding agent model
Artificial Life and Evolutionary Computation, pp. 155-164, Wivace 2008, Venice, Italy
doi: 10.1142/9789814287456_0014

54 F. Zanlungo, A. Bazzani, B. Giorgini, S. Rambaldi, G. Servizi and G. Turchetti
An evolutionary crowd dynamics model
European Conference on Complex Systems 2007, Dresden Germany

55 F. Zanlungo, T. Arita
Evolutionary Simulation of an Agent Based Mobility System Using Indirect Communication
International Symposium of Artificial Life and Robotics (A-Life) 2006, pp. 319-322, Oita, Japan