

Matej Babič

Personal Details

Born: 7.3.1983 Murska Sobota, Slovenia

E-mail: babicster@gmail.com

Address: Podgradje 26, Ljutomer, Slovenia

Work Experience

2019 - Assistant Prof. at Faculty of information studies, Novo mesto, Slovenia,

2018 - 2018 Assistant with Ph.D. Postdoc Researcher at Faculty of Civil and Geodetic Engineering, University of Ljubljana

2015 - 2017 Assistant with Ph.D., Postdoc Researcher at Laboratory for Open Systems and Network, Jožef Stefan Institute, Ljubljana, Slovenia

2009 - 2013 Ph.D. student at the Emo-orodjarna d.o.o., Celje, Slovenia

2008 - 2009 Mathematics Teacher in Elementary School, Puconci, Slovenia

2007 - 2008 Mathematics Teacher in Elementary School, Mala Nedelja, Slovenia

Education

2014 Ph.D. in Computer Science, Faculty of Electrical Engineering and Computer Science at the University of Maribor (UM FERI), Slovenia

2008 B.Sc. Mathematics, Faculty of Natural Sciences *and* Mathematics at the University of Maribor (UM FNM), Slovenia

Technical Skills

Software proficiency

- MS Office, Adobe Photoshop, ImageJ, HTML (Wordpress), Latex, Octave, Matlab, Derive, Geogebra,
- Network analysis: Pajek,
- Data mining, Statistics and Graphics: NCSS 11, SPSS, PSPP, R, Excel, Weka, Orange,
- 3D CAD modeling: Autodesk Maya (base), Sketchup pro,

Research Interest

- Mathematics (Graph Theory, Network Analysis, Social Network, Mathematical Finance, Statistics)
- Biomathematics (DNA Sequences Analysis, Computational Biology, Bioinformatic, Molecular Genetics, Comparative Genomics, microRNAs, Cancer Genetics, Molecular Networks, Phylogeographical Genetic)

- Physics (Fractals, Theory of Complexity)
- Computer Science (Method of Intelligent Systems, Image processing, Hybrid machine learning, Data mining, Pattern Recognition, Modeling, 3D CAD modeling, fractal CAD modeling)
- Engineering (Nanoscience, Nanotechnology, Nanomaterials, Mechanical Engineering, Metallurgy, Tribology, Robotics, Topography of materials, Robot laser hardening, 3D printing metal materials, Robot laser cutting, Public transport system)

Invited talk

BABIČ, Matej. A new approach of fractality network in engineering : invited talk, Yildiz Technical University, Mechatronics Engineering Dept., 2023, Yildiz Technical University, Mechatronics Engineering Dept., Istanbul, Turkey.

BABIČ, Matej. Complex network and its application in public transport : invited talk, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture at University of Split, 17 March 2022, Split, Croatia.

BABIČ, Matej. Complexity in 3D space and its applications in mechanical engineering : course presented to student from first year of the masters's degree in intelligent systems of instrumentation and measurement, 25 October, 2022, Electrical Engineering Faculty, University Politehnica of Bucharest, Romania.

BABIČ, Matej. Machine Learning using in different techniques of robot laser hardening and complexity of microstructure : invited talk, Department of Metallurgical Engineering Faculty of Engineering Chulalongkorn University Bangkok.

BABIČ, Matej. Mathematics and network transport : invited talk, Dipartimento di Ingegneria Industriale, 29 March 2022, Bologna, Italy.

BABIČ, Matej. A new method for determination complexity of network using in transport system : invited talk, Technical University of Košice, Faculty of Materials, Metallurgy and Recycling, Institute of Materials and Quality Engineering, 26. Jan. 2022, Košice, Slovakia.

BABIČ, Matej. A new method for estimating fractal dimension of network and its application in public transport : invited talk, University of Miskolc, Faculty of Mechanical Engineering and Informatics, Institute of Manufacturing Science, Miskolc-Egyetemváros, 23. Feb. 2022, Hungary.

BABIČ, Matej. Uporaba računalniških in matematičnih metod v omrežju izposoje koles : vabljeno predavanje, UP Fakulteta za turistične študije, 11. marec, 2022, Portorož, Slovenija.

BABIČ, Matej. Modelling public bicycle transport by using data mining : predavanje na University of Rijeka, Department of Informatics, 24. 11. 2021.

BABIČ, Matej. Modelling public bicycle transport for 35 week with topological properties of network : invited talk, Faculty of Humanities and Social Science, 21 Sep. 2021, University of Rijeka, Croatia.

BABIČ, Matej. A new hybrid system of machine learning using in mechanical engineering : Department of Mechanics, Materials Science and Biomedical Engineering at Wroclaw University of Science and Technology, 20. april 2021.

BABIČ, Matej. Primjena teorije mreže u javnom prevozu biciklima : vabljeno predavanje, Mašinski fakultet, Univ. u Crni Gori, 7. 10. 2021.

BABIČ, Matej. Statistical pattern recognition for a 3D visibility network and a new hybrid system of machine learning : invited talk, Odessa State Academy of Civil Engineering and Architecture, 9 April, 2021, Odessa, Ukraine.

BABIČ, Matej. Using machine learning method to predict mechanical properties of robot laser hardened specimens : invited lecture entitled at the Institute of Mechanics at TU Berlin, on October 20, 2021.

BABIČ, Matej. New approach to modelling public bicycle transport system : vabljeno predavanje na University of Udine, Polytechnic Department of Engineering and Architecture, 13. 2. 2010, Udine.

BABIČ, Matej. A new method for complexity network and it's application in bicycle transport : predavanje na Technical University of Košice, Faculty of materials metallurgy and recycling, 4. 3. 2020.

BABIČ, Matej. Traveling salesman problem and complex network in urban transport system : vabljeno predavanje na Sveučilištu Jurja Dobrile, Fakultet informatike, Pula, 16. 1. 2020.

BABIČ, Matej. Mathematical applications in engineering : invited talk, University of North, Department of Mechanical Engineering, 28th Feb. 2019, Varaždin, Croatia.

BABIČ, Matej. Modeling public transport with a new method for complexity networks determination : predavanje na Università Degli Studi di Trieste, Department of Engineering and Architecture, 4. 12. 2019.

BABIČ, Matej. A new method of complexity networks and its application in transport: predavanje na Sveučilište u Rijeci, Politehnika, 13. 5. 2019.

BABIČ, Matej. Structure and dynamics of urban network : invited talk, the University of Florence, October 7th - 11th, 2019, Florence, Italy.

BABIČ, Matej. New hybrid system of machine learning and statistical pattern recognition for a 3D visibility network : invited talk, Institut "Ruđer Bošković", 21 June 2018, Zagreb, Croatia.

BABIČ, Matej. New method of hybrid system of machine learning using in technology: invited talk, University North, 21 November, 2018, Varaždin, Croatia.

BABIČ, Matej. A novel approach for pattern recognition by using graph theory : invited talk, University of Rijeka, Department of Informatics, 18th April 2018, Rijeka, Croatia.

BABIČ, Matej. New method of hybrid system of machine learning using a new method for statistical pattern recognition by using network theory : invited talk, Sveučilište u Rijeci, Tehnički fakultet, 11. 5. 2018, Rijeka, Hrvatska.

H-index: 6

Citations: 112

Awards (Head of project)

2020-2022 Bilateral project between the Republic of Slovenia and the Federal Republic of Germany with the number BI-DE/21-22-003

2019-2022 Call for proposals to promote early-stage researchers 2.1

2015-2017 National scholarship for Promote the employment of young PhDs at Jožef Stefan Institute

2009-2013 National scholarship for Ph.D. student position at Emo-Orodjarna d.o.o.

Editor

Fractal and fractional. BABIČ, Matej (guest editor 2021-2022, 2022-2023). Basel: MDPI AG, 2017-. ISSN 2504-3110. <http://www.mdpi.com/journal/fractalfract>.

BABIČ, Matej (editor). 3. *International Conference on New Research and Development in Technical and Natural Science - ICNRDTNS : Slovenia, 20. December 2022*. Elektronic [!] ed. Podgradje: Complex System Company, 2022. 1 spletni vir (1 datoteka PDF (61 str.)), ilustr. ISBN 978-961-07-1446-0. <https://icnrdtns.net>

BABIČ, Matej (editor). 2. *International Conference on New Research and Development in Technical and Natural Science - ICNRDTNS : Novo mesto, Slovenia, 22.- 24. September 2021*. Electronic ed. Podgradje: Complex System Company, 2021. 1 spletni vir (1 datoteka PDF (78 str.)), ilustr. ISBN 978-961-07-0827-8. <http://icnrdtns.com/>. [COBISS.SI-ID [82300163](#)]

BABIČ, Matej (editor). *1st International Conference on New Research and Development in Technical and Natural Science - ICNRDTNS, Radenci, Slovenia, 18.- 20. September 2019*. Elektronic [i. e. electronic] ed. Podgradje: Complex System Company, 2019. ilustr. ISBN 978-961-290-461-6. <http://icnrdtns.com/wp-content/uploads/2019/09/e-book-of-conference-paper.pdf>.

International collaboration network with paper publications or with invited talk

Vinča Institute of Nuclear Science, Serbia
University of Catania, Italy
Indian Institute of Technology, Madras, India
University of Technology, Mauritius
Slovak Academy of Sciences, Slovakia
University of Miskolc, Hungary
Effat University of Saudi Arabia, Saudi Arabia
University of Skopje, Mecedonia
Ruđer Bošković Institute, Zagreb, Croatia
Yildiz Technical University, Istanbul, Turkey
Technical University Berlin, Germany
University of the Philippines Cebu, Philippines
Universidade Federal do Rio Grande do Sul, Brasil
Université du Québec à Rimouski, Canada
Czech Technical University in Prague, Czech
Open University of Cyprus, Nicosia, Cyprus
University of Agriculture in Krakow, Poland
Kyiv National University of Construction and Architecture, Ukraine

University of Bihać, Bosnia and Herzegovina
University of Montenegro, Montenegro
Politehnica University of Bucharest, Romania
University of Beira Interior, Covilhã, Portugal
University of Chemical Technology and Metallurgy, Sofia, Bulgaria
University of Seville, Spain
University of Novi Sad, Serbia
Alma Mater Studiorum University of Bologna, Italy
University of Rijeka, Croatia
Faculty of Mechanical and Civil Engineering Kraljevo, Serbia
Budapest University of Technology and Economics, Hungary
Juraj Dobrila University of Pula, Croatia
Poznan University of Technology, Poland
Maria Curie –Skłodowska University, Lublin, Poland
University of Montenegro, Montenegro
University of Zenica, Bosnia and Herzegovina
Faculty of Materials, Metallurgy and Recycling, Košice, Slovakia
VSB-Technical University of Ostrava, Slovakia
The Odessa State Academy of Civil Engineering, Odessa, Ukraine,
University of North, Croatia
Faculty of Technical Science, Novi Sad, Serbia
Poznan University of Technology, Poland
Technical University in Zvolen, Slovakia
University of Cagliari, Italy
Wroclaw University of Science and Technology, Poland
Universidade do Extremo Sul Catarinense – UNESC, Brasil
Hamburg University of Technology, Germany
University of Florence, Italy
CNRS French National Center for Scientific Research, France
University of Suffolk, England
College of Information at the University of North Texas, USA