






PERSONAL INFORMATION

Matija Piškorec

 Fancevljev prilaz 2, 10000 Zagreb, Croatia
 +385 91 516 7547  +385 91 516 7547
 matija.piskorec@gmail.com
 [matijapiskorec.github.io](https://github.com/matijapiskorec)
Gender Male | Date of birth 27 August 1986

WORK EXPERIENCE

July 2019 onwards (expected to finish in July 2020)

Research assistant at the Centre for Excellence, Zagreb, Croatia

Faculty of Electrical Engineering and Computing
Unska 3, Zagreb, Croatia

Working on research project "Datacross". My duties include statistical modeling on social network data and developing of bioinformatics web services.

July 2013 – July 2019

Research assistant at the Ruđer Bošković Institute, Zagreb, Croatia

Ruđer Bošković Institute
Bijenička cesta 54, Zagreb, Croatia

Working in the group of Tomislav Šmuc on problems considering complex networks, machine learning, data mining, knowledge discovery. Working on FP7 project "Foundational Research on Multilevel Complex Networks and Systems" (MULTIPLEX) and project of Croatian Science Foundation "Machine Learning Algorithms for Insightful Analysis of Complex Data Structures".

February 2012 – July 2013

Expert associate on FP7 project "Forecasting Financial Crises (FOC)"

Ruđer Bošković Institute
Bijenička cesta 54, Zagreb, Croatia

Collection of macro-level (country) data and design and implementation of forecasting model based on that data. Collaboration with Jožef Stefan Institute in Ljubljana in developing non-financial risk modeling methodology that will provides additional view on the build-up and emergence of financial crises.

February 2012 – July 2013

Expert associate on FP7 project "e-Laboratory for Collaborative Interdisciplinary Research in Data Mining and Data Intensive Sciences-Enlarged European Union (e-LICO)"

Ruđer Bošković Institute
Bijenička cesta 54, Zagreb, Croatia

My main task was to design and implement predictive model for execution-time estimation of data mining workflows. This was a part of larger collaboration with Jožef Stefan Institute in Ljubljana and University of Geneva trying to develop a non-functional assessment of automatically generated data mining workflows.

October 2010 – June 2011

Researcher at the Max F. Perutz Laboratories GmbH, Vienna, Austria

Max F. Perutz Laboratories GmbH
Dr. Bohr-Gasse 9, 1030 Wien, Austria

Working in the group of Bojan Žagrović (Laboratory of Computational Biophysics) on problems considering allostery in serine proteases (thrombin), molecular dynamics simulations on graphics processors and large scale distributed system for molecular dynamics simulations (Folding@Home).

TEACHING EXPERIENCE

March 2018 – July 2019, March 2018 – July 2017, March 2016 – July 2016, March 2015 – July 2015, March 2014 – July 2014, March 2013 – July 2013

Assistant on the course “Machine learning”

University of Zagreb, Faculty of Science, Department of mathematics
Horvatovac 102a, Zagreb, Croatia

Supervision and grading of student projects. Developing and delivering practical exercises in Python and scikit-learn. Grading of exams. The course is an electoral course on the Master's level.

September 2017, September 2016

Assistant at the “International Summer School on Data Science”

University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture
Ruđera Boškovića 32, Split, Croatia

Developing and delivering practical exercises in dimensionality reduction, feature selection, and character-wise language modeling with multi-layer LSTMs.

March 2010 - June 2010, March 2009 - June 2009

Demonstrator on the course “Signals and systems”

University of Zagreb, Faculty of Electrical Engineering and Computing
Unska 3, 10000 Zagreb, Croatia

Helping other students during the laboratory exercises that were conducted in Matlab. The course is a compulsory for a second year undergraduate students.

EDUCATION AND TRAINING

2014 – 2019

PhD doctoral program

Faculty of Electrical Engineering and Computing, University of Zagreb, Zagreb, Croatia
Developing methods for statistical inference of endogenous and exogenous influence in online social networks. Maximum likelihood estimation. Collection and management of online social network data.

PhD thesis: “Statistical inference of endogenous and exogenous influence in social networks” (in English)

Advisors: Mile Šikić and Tomislav Šmuc

2008 – 2010

Master of Science in Computing

Faculty of Electrical Engineering and Computing, University of Zagreb, Zagreb, Croatia

- advanced algorithms and data structures
- object and xml databases, object-oriented design
- digital signal and image processing
- machine learning, machine vision
- parallel programming, programming on graphics processors

Master thesis: “Multiresolution analysis of macromolecular structures” (in English)

Advisor: Mile Šikić

2005 – 2008 **Bachelor of Science in Computing**
 Faculty of Electrical Engineering and Computing, University of Zagreb, Zagreb, Croatia
 - programming and algorithms
 - databases
 - computer networks
 - information processing
 - artificial intelligence and pattern recognition
 Bachelor thesis: “Identifying sets of key players in complex networks” (in Croatian)
 Advisor: Branko Jeren

2001 – 2005 **High school diploma**
 Gymnasium Bjelovar, Bjelovar, Croatia

PERSONAL SKILLS

Mother tongue(s) Croatian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
German	A1	A1	A1	A1	A1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
 Common European Framework of Reference (CEF) level

Organisational / managerial skills Web, proceedings and local organization chair for the Discovery Science 2019 conference in Split, Croatia, in October 2019. Discovery Science 2019 is a three-day international conference in topics ranging from machine learning, to data mining and knowledge discovery. My duties involved managing the conference’s website, preparation of the conference proceedings (published in Lecture Notes in Computer Science by Springer Cham), and managing day-to-day activities at the local venue.

I am a member of the Society for Out of Frame Education - a non-profit organization based in Zagreb, Croatia, which organizes science-related educational activities for students and high-schoolers and promotes scientific education. My main duties involve financial administration and reporting, as well as general administrative and organizational support to the members and volunteers.

I was an organizer of the Summer School of Science (S3) in Višnjan, Croatia, in 2010 and 2011. S3 is a one-week international science school for high-school students from Croatia and abroad. My duties involved selecting participants, project leaders and lecturers, fundraising and marketing, working with project leaders on preparation of their projects, managing day-to-day activities during the school.

Computer skills

- programming languages: C, C++, R, Matlab, Python, Javascript, Bash
- databases: MySql, PostgreSQL, MongoDB
- operating systems: Windows, Linux
- machine learning: scikit-learn, Pandas, Numpy, Tensorflow, RapidMiner
- visualization: matplotlib, gnuplot, Inkscape, Gimp, Photoshop, Gephi
- bioinformatics: Gromacs, Pymol, VMD
- web development: HTML, CSS, D3, Angular, Vue, Node, Bootstrap
- typesetting: Microsoft Office, LibreOffice, LaTeX

Driving licence B category

Awards and recognitions

Rector's Award of University of Zagreb, July 2010, for project "New Robust Method for QSAR Analysis Based on Multivariate Regression and L1 norm" (in Croatian). Advisor was Mile Šikić from the Faculty of Electrical Engineering and Computing. The project was performed in collaboration with Bono Lučić from the Rudjer Boskovic Institute.

Best student paper award for paper "Parallel Protein Docking Tool" presented on conference MIPRO 2010 in Opatija, Croatia.

Second award on competition "Best student software of the Faculty of Electrical Engineering and Computing" held in November 2009 for project "Protein Docking Tool". The award is given for especially good software solutions that are developed by students of Faculty of Electrical Engineering and Computing.

First place on competition "Balkan Case Challenge", April 2009, in category "Information and Communication Technology" held in Belgrade. This qualified me for finals held in Vienna. The purpose of the competition is preparation and presentation of conceptual solutions to problems from business practice.

Publications

Piškorec M., Šmuc T., Šikić M., "Disentangling sources of influence in online social networks", IEEE Access, Volume 7.

Antulov-Fantulin N., Tolić D., Piškorec M., Ce Z., Vodenska I., "Inferring Short-Term Volatility Indicators from the Bitcoin Blockchain", Complex Networks and Their Applications VII: Proceedings of Complex Networks 2018.

Piškorec M., Antulov-Fantulin N., Miholić I., Šmuc T., Šikić M., "Modeling Peer and External Influence in Online Social Networks: Case of 2013 Referendum in Croatia", Complex Networks and Their Applications VI: Proceedings of Complex Networks 2017.

Brbić M., Piškorec M., Vidulin V., Kriško A., Šmuc T., Supek F., "The landscape of microbial phenotypic traits and associated genes", Nucleic Acids Research.

Piškorec M., Sluban B., Šmuc T., "MultiNets: Web-Based Multilayer Network Visualization", In Proceedings of ECML-PKDD 2017 Part III.

Piškorec M., Antulov-Fantulin N., Kralj-Novak P., Mozetič I., Grčar M., Vodenska I. and Šmuc T., "Cohesiveness in Financial News and its Relation to Market Volatility", Scientific Reports 4.

Piškorec M., Bošnjak M. and Šmuc T., "Meta-modeling Execution Times of RapidMiner Operators", Proceedings of the 3rd RapidMiner Community Meeting and Conference (RCOMM 2012).

Piškorec M., Antulov-Fantulin N., Čurić J., Dragoljević O., Ivanac V. and Karlović L., "Computer vision system for the chess game reconstruction", Proceedings of the 34th International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO 2011).

Sović I., Antulov-Fantulin N., Čanadi I., Piškorec M. and Šikić M., "Parallel Protein Docking Tool", Proceedings of the 33rd International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO 2010)

Talks and conferences

Complex Networks 2017 with talk "Modeling Peer and External Influence in Online Social Networks: Case of 2013 Referendum in Croatia", Lyon, France, November 2017.

ECML-PKDD 2015 (European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases) with talk and poster "MultiNets: Web-based multilayer network visualization", Porto, Portugal, September 2015.

ECCS 2014 (European Conference on Complex Systems) with talk "Cohesiveness in financial news and its relation to market volatility" and an ignite talk "Modeling voting activity dynamics in social network during December 1st 2013 referendum in Croatia", Lucca, Italy, September 2014.

ECCS 2013 (European Conference on Complex Systems) with talk "Quantifying the Impact of Cohesiveness in Financial News", Barcelona, Spain, September 2013.

Schools and workshops

- From Game Theory to Computational Social Science and Beyond, ETH Zurich, Zurich, Switzerland, June 2019
- ETH Crypto Datathon, ETH Zurich, Zurich, Switzerland, June 2018
- Blockchain and Internet-of-Things School, ETH Zurich, Zurich, Switzerland, April 2018
- Summer School On Mining Big And Complex Data, Ohrid, Macedonia, September 2016
- School on Large Scale Problems in Machine Learning and Workshop on Common Concepts in Machine Learning and Statistical Physics, Trieste, Italy, August 2012