



Matea Ugrica

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WORK EXPERIENCE

2012 – 2015 Osijek, Croatia

DEMONSTRATOR DEPARTMENT OF MATHEMATICS

25/10/2015 – 06/05/2016 Osijek, Croatia

ASSISTANT DEPARTMENT OF MATHEMATICS

07/05/2016 – 29/09/2016 Osijek, Croatia

RESEARCH ASSISTANT DEPARTMENT OF MATHEMATICS

30/09/2016 – 30/07/2020 Osijek, Croatia

ASSISTANT DEPARTMENT OF MATHEMATICS

31/07/2020 – CURRENT Osijek, Croatia

POSTDOC DEPARTMENT OF MATHEMATICS

EDUCATION AND TRAINING

Osijek, Croatia

BACCALAUREUS OF MATHEMATICS Department of mathematics

2012 – 2015 Osijek, Croatia

MAGISTER OF MATHEMATICS Department of mathematics

2014 – 2020

PHD University of Zagreb, Faculty of Science, Department of Mathematics

LANGUAGE SKILLS

Mother tongue(s): **CROATIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C1	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

ADDITIONAL INFORMATION

PUBLICATIONS

Publications

QR decomposition using Givens rotations and applications, Z. Tomljanović, M. Ugrica

Publications

- N. Truhar, Z. Tomljanović, M. Puvača, An Efficient Approximation For Optimal Damping In Mechanical Systems, International journal of numerical analysis and modeling **14/2** (2017), 201-217
 - N. Truhar, Z. Tomljanović, M. Puvača, Approximation of damped quadratic eigenvalue problem by dimension reduction, Applied mathematics and computation **347** (2019), 40-53
 - Y. Kanno, M. Puvača, Z. Tomljanović, N. Truhar, Optimization Of Damping Positions In A Mechanical System, Rad HAZU, Matematičke znanosti. **23** (2019), 141-157
 - I. Kuzmanović Ivičić, S. Miodragović, M. Ugrica, The $\tan \Theta$ theorem for definite matrix pairs, Linear and multilinear algebra **70** (2022), 1-17
 - N. Jakovčević Stor, T. Mitchell, Z. Tomljanović, M. Ugrica, Fast optimization of viscosities for frequency-weighted damping of second-order systems, Journal of Applied Mathematics and Mechanics **103/5** (2023), 1-21
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Approximation of quadratic eigenvalue problem and application to damping optimization, PhD thesis

NETWORKS AND MEMBERSHIPS

Memberships Croatian Mensa

CONFERENCES AND SEMINARS

Conferences

- PhD student symposium at PMF in Zagreb, Croatia, February 9, 2018
- [GAMM Annual Meeting](#), March 19-23, 2018 Munich, Germany, gave talk on "Perturbation Bounds for Parameter Dependent Quadratic Eigenvalue Problem"
- [GAMM-Fachausschusses „Dynamik und Regelungstheorie“](#), April 19-20, 2018 Berlin, Germany, gave talk on "Perturbation Bounds for Parameter Dependent Quadratic Eigenvalue Problem"
- [International Workshop on Optimal Control of Dynamical Systems and applications](#), June 20-22, 2018, Osijek, Croatia, gave talk on "Approximations of Eigenpairs for Parameter Dependent Quadratic Eigenvalue Problem and Applications"
- [ApplMath18](#), September 17-20, 2018, Solaris, Šibenik, Croatia, gave talk on "Approximations of Eigenpairs for Parameter Dependent Quadratic Eigenvalue Problem and Applications"
- [CIAM 2019](#), July, 15-19, Valencia, Spain, gave talk on "Approximation of damped quadratic eigenvalue problem by dimension reduction",
- [ApplMath2020](#), September 14-18 2020, Brijuni, Croatia, gave talk on "Frequency-weighted damping via nonsmooth optimization and fast computation of QEPs with low-rank updates"
- [ALAMA](#), June, 1-3, 2022, Universidad de Alcalá, Alcalá de Henares, Madrid, Spain, gave talk on "Frequency-weighted damping via nonsmooth optimization and fast computation of QEPs with low-rank updates"
- [SIAM Conference on Computational Science and Engineering \(CSE23\)](#), February 26 – March 3 2023, Amsterdam, Netherlands

Seminars

- The third International School on **Model Reduction for Dynamical Control Systems (October 5 - 10, 2015, in Dubrovnik)**
- 6th Croatian Mathematical Congress (June 14-17, 2016., Zagreb, Hrvatska)
- DAAD - Krylov Subspaces and Applications, Golem, Kavaja, Albania, September 2016
- Reduced Basis Summer School 2016, (Kloster Hedersleben, Germany, October 3-7, 2016), gave a talk on "An efficient approximation for the optimal damping in mechanical systems"
- [Workshop on Model Reduction Methods and Optimization](#), September 20-21, 2016, in Opatija, Croatia.
- [Model reduction course HYDRA](#), March 6-9, 2017, Eindhoven, The Netherlands.
- [Gene Golub Summer School](#), May 29-June 9, 2017, Berlin, Germany.
- [17th GAMM Workshop ANLA](#), September 7-8, 2017, Cologne, Germany.
- [GAMM ANLA Workshop](#), October 10-12, 2018, Lund, Švedska.
- [Workshop on Control of Dynamical Systems](#), 14.-16.6.2021., Dubrovnik, Croatia, gave talk on "Frequency-weighted damping via nonsmooth optimization and fast computation of QEPs with low-rank updates"
- [GAMM ANLA Workshop](#), 16.-17.9.2021. Potsdam, Njemačka gave talk on "Fast optimization of viscosities for frequency-weighted damping of second-order systems"
- [3rd Workshop on Optimal Control of Dynamical Systems and applications](#), March, 28-31, 2022 at Department of Mathematics, J. J. Strossmayer University of Osijek, Osijek, Croatia, gave talk on "Frequency-weighted damping via nonsmooth optimization and fast computation of QEPs with low-rank updates"
- [School on Artificial Intelligence for Materials Science in the Exascale Era](#), BiGmax, 21. – 26.5.2023. Costa Brava, Spain

PROJECTS

Projects

- [Optimization of parameter dependent mechanical systems](#) (IP-2014-09-9540; OptPDMechSys). This project has been fully supported by Croatian Science Foundation for the period 01.07.2015.--30.06.2019.
- Robustness optimization of damped mechanical systems, -- scientific project; supported by the DAAD for period 2017--2018; cooperation with TU Berlin, Germany
- Isolation of the unwanted part of the spectrum in the quadratic eigenvalue problem. Project was funded by J. J. Strossmayer University of Osijek, for period November, 2018.- May, 2020.
- [Vibration Reduction in Mechanical Systems](#) -- scientific project (IP-2019-04-6774, VIMS). This project has been fully supported by Croatian Science Foundation for the period 01.01.2020.--31.12.2023. (postdoc)

HONOURS AND AWARDS

Awards Rector's award for the academic year 2013./2014. for student paper "QR decomposition using Givens rotations"

ORGANISATIONAL SKILLS

Co-organizer International Workshop on Optimal Control of Dynamical Systems and applications, 20.-22.6.2018. at Department of Mathematics, J. J. Strossmayer University of Osijek

Workshop on Optimal Control of Dynamical Systems and applications, 5.-6.11.2020. at Department of Mathematics, J. J. Strossmayer University of Osijek <http://vims.mathos.unios.hr/home/workshop2020>

Member of Organizing committee of the [8th Croatian Mathematical Congress](#), 2.-5.7.2024. at School of Applied Mathematics and Informatics, J. J. Strossmayer University of Osijek

VISITING RESEARCHER

Visiting researcher

- at TU Berlin, Germany September, 18-29, 2017
- at TU Berlin, Germany April, 16-20, 2018
- at Max - Plank Institut, Magdeburg, Germany April, 21-27, 2018
- visiting researcher at Max Planck Institut, Magdeburg, Germany September, 12-15, 2021
- postdoc at Max Planck Institut, Magdeburg, Germany September, 1 2022 – August, 31 2023