



# Mircheski Petar

PHD. CANDIDATE • NONLINEAR-DYNAMICS

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## Work Experience

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### Institute of Science Tokyo (formerly Tokyo Institute of Technology)

Tokyo, Japan

RESEARCH ASSISTANT

- Lead research in the area of non-linear dynamics and network science.
- Conducted numerical experiments using advanced mathematical and computational techniques.

### Erden LLC.

Skopje, North Macedonia

June 2019 - Aug. 2021

SCIENTIFIC PROGRAMMER, FRONT-END DEVELOPER

- Worked on AI-driven solutions for analyzing architectural floor plans in raster format, serving the construction and real estate sectors.
- Implemented image processing algorithms for floor plan reconstruction and contributed to 3D visualization projects.
- Specialized in digital image processing, machine learning, data scraping, and the implementation of mathematical analytical geometry algorithms using Python.
- Transitioned to a front-end engineering role, where I designed and implemented client-side mathematical analytical geometry algorithms using TypeScript and the React framework.

### National Bank of the Republic of North Macedonia

Skopje, North Macedonia

IT DEPARTMENT, INTERNSHIP

July 2018 - Aug. 2018

- Provided technical support for the bank's internal system infrastructure.
- Worked with SQL relational databases, gaining hands-on experience in data management and query optimization.
- Assisted in troubleshooting and resolving technical issues, contributing to improved system reliability by reducing system failures by 10%.

### Ss Cyril and Methodius University

Skopje, North Macedonia

LAB ASSISTANT

Jan. 2018 - June 2018

- Demonstrated classes and guided 60 students through the principles of object-oriented programming in the C++ programming language.

## Education

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### Institute of Science Tokyo (formerly Tokyo Institute of Technology)

Tokyo, Japan

PHD. SCHOOL OF ENGINEERING, DEPARTMENT OF SYSTEMS AND CONTROL ENGINEERING

Apr. 2024 - Present

- Research in the area of non-linear dynamics (Dynamics on Networks).
- Collaborating with interdisciplinary teams and contributing to peer-reviewed publications.
- Expected Graduation: April. 2027

### Tokyo Institute of Technology

Tokyo, Japan

MSC. SCHOOL OF ENGINEERING, DEPARTMENT OF SYSTEMS AND CONTROL ENGINEERING

Sep. 2021 - Apr. 2024

- Research in the area of non-linear dynamics (Dynamics on Networks and dimensionality reduction).
- Master's thesis title: "Phase-amplitude reduction and optimal phase locking of collectively oscillating networks", in the area of non-linear dynamics.
- Recognized as one of the 220 top graduate students in the engineering field in Japan (See awards section)
- GPA: 3.58 / 4.0.

### B.S. Ss Cyril and Methodius University, Faculty of Electrical Engineering and Information Technologies

Skopje, North Macedonia

DEPARTMENT OF COMPUTER SYSTEM ENGINEERING, AUTOMATION AND ROBOTICS

Sep. 2016 - Sep. 2020

- Thesis title: "Non-linear Analysis of Neural Interactions", in the areas of bio-physics and non-linear dynamics.
- GPA: 9.07/10.

## Skills

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**Programming** Python, C++, Typescript, LaTeX, SQL, Matlab, Octave, Julia

**Scientific Programming** Numpy, Numba, Pandas, Matplotlib, Pytorch, Scikit-Learn, Open-CV

**Back-end** REST API, FastAPI, Django, Flask

**Front-end** React, Next.js, HTML5, CSS, Tailwind-css, Material-ui

**Computer Skills** Unix and Linux, Bash, git, Docker

**Languages** Macedonian (native), English (proficient), Japanese (conversational), Serbo-Croatian (conversational)

# Papers and Conference Proceedings

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2025	<b>P. Mircheski, H Nakao</b> , Spatial locking of chimera states to frequency heterogeneity in nonlocally coupled oscillators. <i>Chaos</i> 35, 063105	Chaos
2025	<b>P. Mircheski, J. Zhu, H Nakao</b> , Phase-Amplitude Reduction of Limit-Cycling Networks for Optimal Synchronization (Proceedings of the IUTAM Symposium on Nonlinear Dynamics for Design of Mechanical Systems Across Different Length/Time Scales.). Springer, Cham. IUTAM 2023. IUTAM Bookseries, vol 43.	Springer
2023	<b>P. Mircheski, J. Zhu, H Nakao</b> , Phase-amplitude reduction and optimal phase locking of collectively oscillating networks. <i>Chaos</i> 33, 103111 [1-18]	Chaos

## Selected Conferences

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23.06.2025	<b>P. Mircheski, H Nakao</b> , Self-Organization of chimera states in non-locally coupled phase oscillators, Oral presentation at Dynamics Days Europe.	Thessaloniki, Greece
10.09.2024	<b>P. Mircheski, H Nakao</b> , Spatially locked chimera states, Poster presentation at International Conference on Self-organization in Life and Matter	Meiji University, Tokyo, Japan
05.09.2023	<b>P. Mircheski, J. Zhu, H Nakao</b> , Phase-amplitude reduction of networks and synchronization, Poster Presentation at Dynamics Days Europe.	Naples, Italy
13.07.2023	<b>P. Mircheski, H Nakao</b> , Phase-amplitude reduction for optimal synchronization of limit cycling networks, Poster Presentation at International Federation of Automatic Control	Yokohama, Japan
17.10.2022	<b>P. Mircheski, J. Zhu, H Nakao</b> , Phase-amplitude reduction of collectively oscillating networks, Oral presentation at Conference on complex systems	Palma de Mallorca, Spain

## Awards, Scholarships and Competitions

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2024	<b>Miura Award</b> , Recognized as one of 220 recipients among Japan's top graduate students. Honors outstanding academic achievements and research contributions. (Society of Mechanical Engineers)	Japan
2021 - Present	<b>Japanese Mext Scholarship</b> , Awarded to foreign students who study in higher education institutions, selected on the recommendation of the Japanese Embassy (Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT))	Japan
2017 - Present	<b>Competitive Programming Competitions</b> , Active participant in ICPC (International Collegiate Programming Contest) and TopCoder. Placed 3rd at ICPC SEERC qualification in 1st and 3rd year of undergraduate studies.	International
2017-2020	<b>Scholarship</b> , Awarded to regular students enrolled in first-cycle undergraduate programs and higher education institutions for exceptional academic performance. (Ministry of Education of The Republic of North Macedonia)	North Macedonia

## References

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Available upon request