Mircheski **Petar**

PhD. Candidate · Nonlinear-Dynamics

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Education

Institute of Science Tokyo (formerly Tokyo Institute of Technology)

Tokyo, Japan

PhD. School of Engineering, Department of Systems and Control Engineering — *Apr. 2024 - Present*

- Extended the MEXT Scholarship.
- Research in the area of non-linear dynamics (Dynamics on Networks).
- Collaborating with interdisciplinary teams and contributing to peer-reviewed publications.

Tokyo Institute of Technology

Tokyo, Japan

Msc. School of Engineering, Department of Systems and Control Engineering — *Sep. 2021 - Apr. 2024*

- Awarded the MEXT Scholarship.
- Joined the research group in Sep. 2021, contributing to projects in non-linear dynamics before officially enrolling in the MSc program in Apr.
- Master's thesis in the area of non-linear dynamics.
- Master's thesis title: "Phase-amplitude reduction and optimal phase locking of collectively oscillating networks."
- Japan Society of Mechanical Engineers Miura Award (2024)
  Recognized as one of 220 recipients among Japan's top graduate students.
  This award honors outstanding academic achievements and research contributions.
- GPA: 3.58 / 4.0.

Ss Cyril and Methodius University

Skopje, North Macedonia

B.S. Faculty of Electrical Engineering and Information Technologies — *Sep. 2016 - Sep. 2020*

- Bachelor's thesis in the area of non-linear dynamics.
- Thesis title: "Non-linear Analysis of Neural Interactions".
- GPA: 9.07/10.

Work Experience and Internships

Institute of Science Tokyo (formerly Tokyo Institute of Technology)

Tokyo, Japan

Research Assistant — *Apr. 2022 - Present*

- Worked on theoretical research in the area of non-linear dynamics and network science.
- Conducted numerical experiments using advanced mathematical and computational techniques.
- Presented research findings at conferences, attended and held workshops, and published novelty results and theories in peer-reviewed research journals.
- Funded by the CREST program (Japan Science and Technology Agency).

Eriden LLC.

Skopje, North Macedonia

Scientific programmer, Front-end developer — *June 2019 - Aug. 2021*

- Began with a four-month internship as a scientific programmer before transitioning to full-time employment.
- Developed AI-driven solutions for analyzing architectural floor plans in raster format, serving the construction and real-estate sectors.
- Engineered 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 Republic of North Macedonia

Skopje, North Macedonia

IT Department, Internship — *July 2018 - Aug. 2018*

- Completed a one-month internship within the IT Department.
- Provided technical support for the bank's internal system infrastructure, ensuring smooth day-to-day operations.
- 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.

Ss Cyril and Methodius University *Skopje, North Macedonia*

Lab Assistant *Jan. 2018 - June 2018*

- Worked on mentoring students in the computer science laboratory.
- Demonstrated and guided students through the principles of object-oriented programming in the C++ programming language.
- Held three weekly lab classes.

Papers and Conference Proceedings

2025	**P. Mircheski, H Nakao**, Spatial locking of chimera states to frequency heterogeneity in nonlocally coupled oscillators. Arxiv preprint, submitted for publishing	*Arxiv*
2025	**P. Mircheski, J. Zhu, H Nakao**, 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	**P. Mircheski, J. Zhu, H Nakao**, Phase-amplitude reduction and optimal phase locking of collectively oscillating networks. Chaos 33, 103111 [1-18]	*Chaos*

Conferences

10.09.2024	**P. Mircheski, H Nakao**, Spatially locked chimera states, Poster presentation at International Conference on Self-organization in Life and Matter	*Meiji University, Tokyo Japan*
05-06.09.2023	**P. Mircheski, J. Zhu, H Nakao**, Phase-amplitude reduction of networks and synchronization, Poster Presentation at Dynamics Days Europe.	*Naples, Italy*
01.08.2023	**P. Mircheski, H Nakao**, Phase-amplitude reduction of limit cycling networks for optimal synchronization, Poster Presentation at International Union of Theoretical and Applied Mechanics	*Tsukuba, Japan*
13.07.2023	**P. Mircheski, H Nakao**, Phase-amplitude reduction for optimal synchronization of limit cycling networks, Poster Presentation at International Federation of Automatic Control	*Yokohama, Japan*
17.10.2022	**P. Mircheski, J.Zhu, H Nakao**, Phase-amplitude reduction of collectively oscillating networks, Oral presentation at Conference on complex systems	*Palma de Mallorca, Spain*

Workshops Attended

19-20.12.2023	**CREST Computational Dynamics General Meeting**, Ehime University Media Hall Program	*Matsuyama Ehime, Japan*
25-26.05.2023	**CREST Computational Dynamics General Meeting**, Awaji Yumebutai	*Awajishima Hyogo, Japan*
14-15.11.2022	**Hirosaki University Workshop on Nonlinear Science 2022**, Iwaki Hall, 50th Anniversary Memorial Hall, Bunkyocho Campus, Hirosaki University	*Hirosaki Aomori, Japan*

Awards and Scholarships

2021 - Present	**Japanese Mext Scholarship**, Awarded to foreign students who study in higher education institutions, selected on the recommendation of Japanese Embassy (Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT))	*Japan*
2024	**Miura Award**, Recognized as one of 220 recipients among Japan's top graduate students. Honors outstanding academic achievements and research contributions. (Society of Mechanical Engineers)	*Japan*
2017-2020	**Scholarship**, 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*

Skills

Languages	Macedonian (native), English (proficient), Serbo-Croatian (conversational)
Programming	Python, Typescript, LaTeX, SQL, Matlab, Octave, Julia
Scientific Programming	Numpy, Numba, Pandas, Matplotlib, Pytorch, Scikit-Learn, Open-CV
Back-end	REST API, Fast-api, Flask
Front-end	React, Next-js, HTML5, CSS, Material-ui
Computer Skills	Unix and Linux, Bash, git, Docker

References

Available upon request