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<b>Last Updated Date</b>	February 20, 2025

## About me

I am Naoki Chihara, a second-year M.Sc. student at Osaka University, Japan, and a specially appointed researcher at SANKEN (The Institute of Scientific and Industrial Research at Osaka University). My research mainly focuses on data stream mining and causal discovery in time series [C1]. I am fortunate to be advised by [Prof. Yasushi Sakurai](#) and [Prof. Yasuko Matsubara](#). I received my B.Sc. degree from Osaka University advised by [Prof. Makoto Onizuka](#) in March 2023.

**Research interests:** Time series analysis, Data mining, Stream processing, Causal discovery, Koopman operator

**Links:** [LinkedIn](#) | [Google Scholar](#) | [GitHub](#) | [ORCID](#) | [Twitter](#)

## Education

<b>M.Sc. in Information Science</b> , Osaka University Department of Information Systems Engineering, Graduate School of Information Science and Technology	2023–present Osaka, Japan
<ul style="list-style-type: none"><li>Thesis: Stream Mining Time-evolving Causality for Time Series Forecasting</li><li>Supervisor: Prof. Yasushi Sakurai</li></ul>	
<b>B.Sc. in Engineering</b> , Osaka University Department of Electronic and Information Engineering, School of Engineering	2019–2023 Osaka, Japan
<ul style="list-style-type: none"><li>Thesis: Detection of Variable Celestial Objects using Machine Learning-based Periodic Analysis and Domain Knowledge</li><li>Supervisor: Prof. Makoto Onizuka</li></ul>	

## Experience

<b>SANKEN</b> , Osaka University Specially Appointed Researcher	2023–present Osaka, Japan
<b>School of Engineering</b> , Osaka University Teaching Assistant for “Exercises in Mathematical Analysis”	2023 Osaka, Japan
<b>Graduate School of Information Science and Technology</b> , Osaka University Teaching Assistant	2021–2023 Osaka, Japan
<b>Nagase Co., Ltd.</b> Digital Technology Engineer	2020–2023 Tokyo, Japan

## Grants and Awards

<b>Information Processing Society of Japan (IPSJ) Yamashita SIG Research Award</b> DEIM2024 Best Paper Award Runner-up (top 1.4%)	July 2024 June 2024
Osaka University Humanware Innovation Program Scholarship	2023–present

## Publications

### Peer-reviewed Publications

[C1] [Naoki Chihara](#), [Yasuko Matsubara](#), [Ren Fujiwara](#), and [Yasushi Sakurai](#). **Modeling Time-evolving Causality over Data Streams**. Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD '25), Toronto, ON, Canada, August 3-7, 2025. Acceptance rate: 19%. [DOI: 10.1145/3690624.3709283](#). [C-Naoki/ModePlait](#) | [TBA](#)

- [W1] [Naoki Chihara](#), Yasuko Matsubara, Ren Fujiwara, and Yasushi Sakurai. **Stream Mining Time-evolving Causality in Time Series**. The 30th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD '24) PhD Consortium, Barcelona, Spain, August 25-29, 2024. [🔗 URL: kdd2024.kdd.org/ph-d-consortium](https://kdd2024.kdd.org/ph-d-consortium).
- [J2] [Naoki Chihara](#), Yasuko Matsubara, Ren Fujiwara, and Yasushi Sakurai. **Real-time Forecasting of Time-evolving Data Streams using Dynamic Mode Decomposition**. IPSJ Transactions on Databases (TOD), Vol. 17, No. 2, pp. 1-11, April 23, 2024. [🔗 URL: ipsj.ixsq.nii.ac.jp/records/233825](https://ipsj.ixsq.nii.ac.jp/records/233825).
- [J1] [Naoki Chihara](#), Tadafumi Takata, Yasuhiro Fujiwara, Koki Noda, Keisuke Toyoda, Kaito Higuchi, and Makoto Onizuka. **Effective detection of variable celestial objects using machine learning-based periodic analysis**. Astronomy and Computing, Vol. 45, pp. 100765, November 3, 2023. [📄 DOI: 10.1016/j.ascom.2023.100765](https://doi.org/10.1016/j.ascom.2023.100765).

## Non-refereed Publications

- [N3] [Naoki Chihara](#), Yasuko Matsubara, Ren Fujiwara, and Yasushi Sakurai. **動的モード分解を活用した高速将来予測アルゴリズム**. The 16th Forum on Data Engineering and Information Management (DEIM2024), Hyogo, Japan, February 28 - March 5, 2024.  
**Best Paper Award Runner-up, IPSJ Yamashita SIG Research Award.**
- [N2] Aiyi Li, Kenya Hoshimure, Kei Tanigaki, Yota Hatano, Reina Nozawa, Yuki Sakamoto, Yuanzhou Wei, [Naoki Chihara](#), and Naoki Kodani. **Semi-autonomous Leader-follower Approach for Swarm Drone Guidance**. The 36th SICE Symposium on Decentralized Autonomous Systems, Tokyo, Japan, February 16-17, 2024.
- [N1] [Naoki Chihara](#), Tadafumi Takata, Yasuhiro Fujiwara, and Makoto Onizuka. **周期解析による変動天体の検出**. The 15th Forum on Data Engineering and Information Management (DEIM2023), Gifu, Japan, March 5-9, 2023.

## Patents

- [P1] Yasuhiro Fujiwara, Makoto Onizuka, and [Naoki Chihara](#). **検出装置、検出方法及びプログラム**. 特開 2025-000129, January 7, 2025. [🔗 URL: jglobal.jst.go.jp/detail?JGLOBAL\\_ID=202503009056531197](https://jglobal.jst.go.jp/detail?JGLOBAL_ID=202503009056531197).

## Academic Services

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Conference Volunteer Work in PAKDD 2023

May 2024

### External Reviewers

- ACM Web Conference 2025