

# Seojin Kim

[✉ seojinkim@kaist.ac.kr](mailto:seojinkim@kaist.ac.kr)

[📍 Daejeon, South Korea](#)

[👤 sjiinkim](#)

[linkedin sjiinkim](#)

## Education

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### KAIST Kim Jaechul Graduate School of AI, Artificial Intelligence

- KV cache
- State Space Models

Daejeon, South Korea

Sept 2024 – present

### Yonsei University, Applied Statistics and Computer Science

- Honors in 2020 spring semester (awarded to top 10 % of the students)
- Honors in 2024 spring semester (awarded to top 10 % of the students)

Seoul, South Korea

Mar 2020 – Aug 2024

## Experience

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### BigDyl, Graduate Researcher

Graduate Researcher at BigDyl, a research group at KAIST, advised by Noseong Park.

- Efficient Language Modeling (KV cache, State Space Models)
- Time Series Analysis
- Recommendation System

Daejeon, South Korea

Sept 2024 – present

1 year 6 months

### Minds n Company (now GenOn), Data Scientist Intern

Data Scientist Intern at Minds n Company, a startup company in Seoul, South Korea.

- Project: AI Banker (LLM Agent) project at Woori Bank
- Skills: Langchain, Natural Language Generation

Seoul, South Korea

Dec 2023 – Feb 2024

2 months

### Ecube Labs, Data Analyst Intern

Data Analyst Intern at Ecube Labs, a startup company in Seoul, South Korea.

- Project: Haulla call data analysis & referral marketing project
- Skills: Data Analytics with Python

Seoul, South Korea

Dec 2021 – Jan 2022

2 months

## Awards

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### 2023 Yonsei Big Data Analysis Contest

2023

2nd place: Verification of AlleyWay Consulting and presentation of Growth Plans with LightGBM

Seojin Kim, Soyeon Shin, Yunseo Choi

[www.nobelprize.org/prizes/physics/1921/einstein/biographical](http://www.nobelprize.org/prizes/physics/1921/einstein/biographical)

### 2021 Traditional Culture Youth Startup Idea Contest

2021

Project: Moon-we: Interactive Matchmaking Platform for Collaboration between Intangible Cultural Properties-Company-Consumer and Crowdfunding Related to Intangible Cultural Properties

Seojin Kim, Jeonghyun Park, Honghee Na, Jaehwan Lee

## Publications

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### Long-term Time Series Forecasting based on Decomposition and Neural Ordinary Differential Equations

Proposes LTSF-DNODE, combining time-series decomposition with neural ODEs for long-term forecasting, improving over baselines on real-world datasets.

Seonkyu Lim, Jaehyeon Park, Seojin Kim\*, Hyowon Wi, Haksoo Lim, Jinsung Jeon, Jeongwhan Choi, Noseong Park

[doi.ieeecomputersociety.org/10.1109/BigData59044.2023.10386388](https://doi.ieeecomputersociety.org/10.1109/BigData59044.2023.10386388)

## **Addressing Prediction Delays in Time Series Forecasting: A Continuous GRU Approach with Derivative Regularization**

Introduces a continuous-time GRU (neural ODE) with time-derivative regularization to mitigate prediction delay in forecasting.

Sheo Yon Jhin, Seojin Kim, Noseong Park  
[doi.org/10.1145/3637528.3671969](https://doi.org/10.1145/3637528.3671969)

## **Mitigating Over-Smoothing in Mamba2 via Spectral Domain Analysis**

Analyzes Mamba2 in the spectral domain and proposes a high-frequency enhancement method to reduce over-smoothing.

Seojin Kim, *Yehjin Shin*, Noseong Park  
[openreview.net/forum?id=r08kqzrito](https://openreview.net/forum?id=r08kqzrito)

## **Graph Signal Processing Meets Mamba2: Adaptive Filter Bank via Delta Modulation**

Reinterprets Mamba2 as an adaptive filter bank and proposes a hierarchical framework inspired by graph signal processing.

*Yehjin Shin*, Seojin Kim, Noseong Park  
[openreview.net/forum?id=cH0OxrmfdL](https://openreview.net/forum?id=cH0OxrmfdL)

## **TV-Rec: Time-Variant Convolutional Filter for Sequential Recommendation**

Proposes time-variant convolutional filters for sequential recommendation to better capture temporal interactions while improving efficiency.

*Yehjin Shin*, Jeongwhan Choi, Seojin Kim, Noseong Park  
[arxiv.org/abs/2510.25259](https://arxiv.org/abs/2510.25259)

## **Graph Signal Processing Meets Mamba2: Adaptive Filter Bank via Delta Modulation**

Reinterprets Mamba2 as an adaptive filter bank and proposes a hierarchical framework inspired by graph signal processing.

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## **Languages**

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### **Korean**

Native speaker

### **English**

Fluent

## **Interests**

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**Artificial Intelligence**