

# Seokjoo CHAE

## Ph.D. Candidate in Mathematical Biology, KAIST

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Ph.D. candidate in Mathematical Sciences at Korea Advanced Institute of Science and Technology (KAIST). A member of Biomedical Mathematics group (BIMAG) in Institute of Basic Science, Korea.

### 🎓 EDUCATION

2017-Current	<b>Korea Advanced Institute of Science and Technology</b> , Daejeon, Republic of Korea Integrated Ph.D. Program, Department of Mathematical Sciences (Advisor : Jae Kyoung Kim, Expected graduation : August 2023)
2013-2016	<b>Korea Advanced Institute of Science and Technology</b> , Daejeon, Republic of Korea B.Sc in Mathematical Sciences, <i>Summa Cum Laude</i>
2011-2012	<b>Hansung Science High School</b> , Seoul, Republic of Korea

### 👍 HONORS, AWARDS AND SCHOLAR

2022	<b>Best Poster Award</b> , Korean Biological Rhythm Society Symposium	Korean Biological Rhythm Society
2021	<b>Best Poster Award</b> , Society for Mathematical Biology Annual meeting	Society for Mathematical Biology
2019	<b>SMB Landahl Travel Grant</b>	Society for Mathematical Biology
2018	<b>2nd Prize</b> , NIMS-Mathworks MATLAB Challenge	KSIAM
2018	<b>SMB Landahl Travel Grant</b>	Society for Mathematical Biology
2017-2020	<b>TJ Park POSCO Science Fellowship</b>	POSCO TJ PARK Foundation
2016	<b>Best Poster Award</b> , KAIST Undergraduate Reserach Program Workshop	KAIST
2016	<b>Bronze prize</b> , Korean College Students Mathematical Competition	KMS
2015-2016	<b>KAIST Presidential Fellowship</b>	KAIST
2015-2016	<b>Undergraduate Scholarship</b>	Korea Foundation for Advanced Study
2014	<b>Dean's list</b> , School for Natural Science	KAIST
2014	<b>Silver prize</b> , Korean College Students Mathematical Competition	KMS
2013	<b>Gold prize</b> , Korean College Students Mathematical Competition	KMS
2013	<b>Alumni Prize for Great Academic Achievement</b> ,	Hansung Science High School
2013-2016	<b>The National Scholarship for Science and Engineering</b>	Korea Student Aid Foundation

### 📖 PUBLICATIONS

2018	Leonid A. Bunimovich, Chi-Jen Wang, <b>Seokjoo Chae</b> , and Benjamin Z. Webb, Uncovering Hierarchical Structure in Social Networks Using Isospectral Reductions, IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining 2018:1199-1
2023	<b>Seokjoo Chae</b> , Dae Wook Kim, Seunggyu Lee, and Jae Kyoung Kim, Spatially coordinated collective phosphorylation filters spatiotemporal noises for precise circadian timekeeping, <b>iScience</b> .

### 🔬 RESEARCH TOPICS

**MECHANISTIC ANALYSIS ON CIRCADIAN RHYTHM REDUCING NOISE FROM INTRA/EXTRACELLULAR ENVIRONMENT** 2021 - 2022  
Quantitative Analysis on circadian rhythm to investigate how the circadian rhythm compensate noise stem from heterogeneous intracellular environment.

MATLAB Circadian rhythm

**NK CELL IMMUNOTHERAPY MODELING** 2017 - 2022  
Finding dominant signals which can improve NK cell immunotherapy efficacy.

MATLAB Mathematical modeling Biological data analysis

**NETWORK INFERENCE AND CAUSALITY DETECTION IN THE CIRCADIAN CLOCK** 2018 - 2022  
Network inference of cells in brain using causality detection method. Causality detection between ecological variables.

MATLAB R C++ Network inference Time series data anlysis

## PRESENTATIONS

2022	International Conference on Systems Biology	Contributed Talk, Berlin, Germany
	Society for Research on Biological Rhythms, Biennial Meeting	Poster, Fernandina Beach, FL, USA
	Korean Biological Rhythm Society Symposium	Poster, Daejeon, Korea
2021	Korea Society for Mathematical biology Annual Meeting	Poster, Jeju, Korea
	Korea Society for Industrial and Applied Mathematics Annual Meeting	Poster, Busan, Korea
	Korea Society for Mathematical biology Spring conference	Contributed talk, Virtual
	Society for Mathematical biology Annual Meeting	Poster, Virtual
	Korea Society for Industrial and Applied Mathematics Spring conference	Poster, Virtual
2020	Korea Society for Industrial and Applied Mathematics Annual Meeting	Poster, Virtual
	Society for Mathematical biology Annual Meeting	Poster, Virtual
2019	Society for Mathematical biology Annual Meeting	Mini symposium, Montreal, Canada
	Society for Mathematical biology Annual Meeting	Poster, Montreal, Canada
2018	Society for Mathematical biology Annual Meeting	Poster, Sydney, Australia
	Korea Society for Mathematical Biology Annual Meeting	Contributed Talk, Busan, Korea
	IMA Workshop on Ecological and Biological Systems	Poster, Minneapolis, MN, USA
	A3 International Workshop For Mathematical and Life Sciences	Poster, Hiroshima, Japan
2016	KAIST Undergraduate Research Program Workshop	Daejeon, Korea

## TEACHING EXPERIENCES

2022 Spring	Undergraduate Research Program	Teaching Assistant
2018 Fall	Calculus II	Student Tutor
2017 Fall	Numerical Linear Algebra	Teaching Assistant
	Calculus II	Teaching Assistant
2017 Spring	Ordinary Differential Equations	Teaching Assistant
	Statistics for Graduate Students	Teaching Assistant
2016 Fall	Calculus II	Student Tutor
2015 Spring	Introduction to programming	Student Tutor
2014 Fall	Calculus II	Student Tutor
2014 Spring	Calculus I	Student Tutor

## PROGRAMMING

MATLAB ● ● ● ● ●  
R ● ● ● ○ ○  
Julia ● ○ ○ ○ ○

## LANGUAGES

English ● ● ● ● ○  
Korean ● ● ● ● ●  
French ● ○ ○ ○ ○