

Joonhyung Shin

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EDUCATION

Korea Advanced Institute of Science and Technology

B.S. in Mathematical Sciences, GPA: 4.18/4.30
Double major in School of Computing

Daejeon, South Korea
2015–Current

University of California, Berkeley

Summer Session, GPA: 4.00/4.00

Berkeley, USA
Summer 2017

Sejong Science High School

Top 10 out of 160 students

Seoul, South Korea
2013–2015

AWARDS AND HONORS

Scholarships and Fellowships

- KAIST Presidential Fellowship 2016–Current
- Korea Presidential Scholarship of Science (\$2,500 per semester) 2015–Current
- Department Honor Scholarship 2016–2017
 - \$1,000 (Fall 2017)
 - \$800 (Fall 2016)

KAIST Honors

- Honor Student 2017–Current
 - A program to honor undergraduate students who possess outstanding grades
- College of Natural Science Dean's List 2018
 - Select two students per department who have shown outstanding performance up to the junior year
- KAIST Dean's List 2015–2018
 - Department of Mathematical Sciences (Spring 2018, Spring 2017)
 - Freshman (Fall 2015, Spring 2015)

Mathematics

- Simon Marais Mathematics Competition 2018–2019
 - 7th place (2019)
 - 9th place (2018)
- KAIST Math Problem of the Week 2015–2016
 - First place (Fall 2016)
 - Third place (Fall 2015)
- National Undergraduate Mathematical Competition 2015
 - Gold award (2015)
- Korean Mathematical Olympiad 2013
 - Excellence award (top 22) in Final KMO (2013)

Computer Science

- Samsung Software Membership 2017–Current
- Samsung Collegiate Programming Cup 2017–2018
 - Fifth Place Award (\$1,000 prize money, 2018)
 - Fifth Place Award (\$1,000 prize money, 2017)
- Connect6 Software Algorithm Contest, DS Division of Samsung Electronics 2017
 - First place in KAIST (\$1,500 prize money, 2017)
- ACM International Collegiate Programming Contest 2016
 - 13th Place in Daejeon Regional (2017)
 - 14th Place in Daejeon Regional (2016)

RESEARCH EXPERIENCE

Individual Study

Department of Mathematical Sciences, KAIST

Advisor: Sang-il Oum, Eric Vigoda

Summer 2018

- Graph theory
- Restoring a graph given a random sample of the proper colorings of a graph

Computer Science Project

School of Computing, KAIST

Advisor: Martin Ziegler

Fall 2017

- Exact real computation
- Designed and implemented tensor calculus in exact real computation paradigm
- Received excellent evaluations from professors and students
- Presented our work at the 21st Japan-Korea Workshop on Algorithms and Computation

Individual Study

School of Electrical Engineering, KAIST

Advisor: Jinwoo Shin

Winter 2017

- Interpretable machine learning
- Object localization with Class Activation Map and Local Interpretable Model-agnostic Explainer

TALKS AND PRESENTATIONS

- Posets and Dilworth's Theorem August 4th, 2020
Combinatorial Optimization Study Group
- Introduction to Combinatorial Optimization and the LP Duality May 5th, 2020
Combinatorial Optimization Study Group
- Tensor Calculus in Exact Real Computation August 26th, 2018
The 21st Japan-Korea Joint Workshop on Algorithms and Computation
- Topological Overlap in the Plane June 7th, 2018
Topics in Mathematics (Topological Methods in Combinatorics)(MAS480)
- The Kolmogorov Complexity Theory May 10th, 2018
Information Theory Study Group
- The Channel Coding Theorems March 29th, 2018
Information Theory Study Group
- Introduction to Information Theory February 26th, 2018
Information Theory Study Group

- A Finiteness Theorem and the Exact Cohomology Sequence
Riemann Surface Study Group November 29th, 2017
- Algebraic Functions and Differential Forms on Riemann Surface
Riemann Surface Study Group September 21st, 2017
- The Lebesgue Integration Theory
KAIST Math Problem Solving Club November 21st, 2016

TEACHING

- **Teaching Assistant** at Korean Mathematical Olympiad 2018
28th KMO Summer School
- **Teaching Assistant** at Korean Mathematical Olympiad 2017
30th KMO Winter School
- **Teaching Assistant** at School of Computing, KAIST Spring 2018
Operating Systems and Labs (CS330)
- **Teaching Assistant** at School of Computing, KAIST Fall 2017
Introduction to Computer Programming (CS101)

ORGANIZATIONAL ACTIVITIES

- KAIST Undergraduate Math Colloquium 2016–Current
 - Advisor (2018–Current)
 - Chief Organizer (Fall 2017, Spring 2018)
 - Organizer (2016–2017)
- Combinatorial Optimization Study Group 2020
 - Created a study group of 6 people of various backgrounds (math, CS, industrial engineering)
 - Organized 12 weeks of combinatorial optimization seminars
- Information Theory Study Group 2018
 - Created a study group of 4 math and EE students
 - Organized 12 weeks of information theory seminars
- KAIST 8th ACM-ICPC Mock Competition Committee 2018
- KAIST 7th ACM-ICPC Mock Competition Committee 2017

WORK EXPERIENCE

Hyperconnect

Data Scientist

Seoul, South Korea

2018–Current

- Alternative military service
- Data anomaly detection system: Used modified z -score and Facebook Prophet algorithm to detect anomaly in data pipeline
- Subscription product recommendation system: Recommended products to users based on their behavior data, using Random Forest algorithm and LSTM
- Data experiment management system: Designed and implemented a stable experiment system to manage lots of A/B testings

SKILLS

- **Programming Languages:** Python, SQL (professional), C/C++, Java, Kotlin, Javascript, \LaTeX (Fluent)
- **Competitive Programming:** CF 2359

LANGUAGES

- **Korean:** Native
- **English:** Fluent

EXTRACURRICULAR ACTIVITIES

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| • Member of KAIST Algorithmic Problem Solving Club <i>Algorithm contest problem setter and committee, server admin</i> | 2016–Current |
| • Member of Algebraic Topology Study Group <i>Aiming to solve all problems in Algebraic Topology, A. Hatcher.</i> | 2018 |
| • Member of Riemann Surface Study Group <i>Gave two seminars on Riemann surface theory</i> | 2017 |
| • Member of KAIST Math Problem Solving Club <i>Gave seminars on various topics</i> | 2015–2017 |
| • Volunteer at Gyeongsang Girl's High School <i>Mentoring and tutoring program for high school students</i> | 2015 |