Jaeho Lee — Curriculum Vitae

Email: jaeho.lee@snu.ac.kr
GitHub: github.com/Zeta611
Blog: zetablog.io

Interests

Static Analysis, Programming Languages, Functional Programming, and Software Engineering

Education

Seoul National University (SNU) — Seoul, Korea
Master of Science in Computer Science and Engineering — *Mar 2024–*
Bachelor of Science in Electrical and Computer Engineering — *Mar 2018–Feb 2024*
National Presidential Scholarship for Science (full-tuition scholarship)
Leave of absence for military duty during 2020–2021

Korea Science Academy of KAIST (KSA) — Busan, Korea
Graduated; GPA: 4.05/4.3 — *Mar 2015–Feb 2018*
High school for gifted students, KSA Fund Scholarship

Research Experiences

Programming Research Laboratory (ROPAS) — Seoul, Korea
Undergraduate research intern, advised by Prof. Kwangkeun Yi — *Feb 2022–Present*
- Static analysis of React programs and formalization of the React hooks (Ongoing work)
- Uncaught exception analysis on ReScript
- Prospect analysis of programs with a hole (`https://github.com/Zeta611/L`)

Security Optimization Research Laboratory (SOR) — Seoul, Korea
Undergraduate graduation project, advised by Prof. Yunheung Paek — *May 2022–Present*
- Escape analysis of `unsafe` Rust (Ongoing work)

Neuro-Machine Augmented Intelligence Laboratory (NMAIL) — Daejeon, Korea
R&E and High School Research & Education Program (HRP), advised by Prof. Sungho Jo — *Jan 2016–Nov 2017*
- Designed an implemented a multi-robot exploration algorithm
  - Attended International Science and Engineering Fair (ISEF) 2017 as a finalist
  - Presented result in the Proceedings of the Korea Information Processing Society Conference

Work Experiences

Jeongyookgak — Seoul, Korea
Software engineer — *Apr 2019–Dec 2019*
- Developed an iOS application as a one person developer
- Jeongyookgak is a distribution business startup that delivers fresh meat to customers

Publications

J. Lee, C. Lee, W. Jung, S. Song, and S. Jo, "Receding Horizon Next-Best-View Planner Based Voronoi-Biased 3D Multi-Robot Exploration Algorithm," *Proceedings of the Korea Information Processing Society Conference,* pp. 579–580, Oct. 2016.

Selected Honors

National Presidential Scholarship for Science *Mar 2018–Present*

National science scholarship offered to top students in the field of science and technology

International Science and Engineering Fair (ISEF) Finalist *May 2017*

Title: The Next Generation Multi-Robot Exploration: Biased Viewpoint Sampling via Dynamic Voronoi Space Partitioning and Receding Horizon Scheme

Korea Science Academy Fund Scholarship *Mar 2015–Feb 2018*

Scholarship for freshmen with high GPAs

Teaching Experiences

Seoul National University

Teaching Assistant, *4190.310 Programming Languages* *Spring 2022*

Projects

easyword.kr: Easy Korean Translations of CS Jargons

The website provides a place to suggest, discuss, and vote easy korean translations of CS jargons. It is created using ReScript, a cousin of OCaml that transpiles to React.

Tech stacks: ReScript, React, and Tailwind CSS

simplebnf: Simple Backus-Naur form (BNF) LaTeX package

The package provides a simple way to format Backus-Naur form (BNF) that parses BNF expressions.

Tech stacks: LaTeX with expl3, an experimental LaTeX3 programming interface

SwiftUI-Fractals: The Sierpinski carpet, triangle, and a fractal tree using SwiftUI

The app demonstrates the Sierpinksi carpet & triangle, and a fractal tree using SwiftUI. There is an accompanying article (in Korean) as well.

Tech stacks: SwiftUI

PolyCalc: Polynomial Calculator

PolyCalc calculates and expands polynomials, equations, and relations, with a support for simple variable assignments for the ease of handling expressions.

Tech stacks: C, Yacc, and Lex

Video-Converter: A simple video converter for Mac

The app is a simple video converter for Mac, implemented using a unidirectional data flow pattern with a View-State-Interactor structure.

Tech stacks: SwiftUI and Combine

Cycloidal-Surfaces: Draws cycloid surfaces on parametrized curves

This is used to provide illustrations in the article, Hyounggyu Choi. (2023) Invariance of the Area and Volume of Cycloid Surfaces and Trochoid Surfaces. *The American Mathematical Monthly* 130:1, 49-62.

Tech stacks: Asymptote and LaTeX

CycloidGen: Draws cycloids on parametrized curves

This is used to provide illustrations in the article, Hyounggyu Choi. (2020) Invariance of the Length and the Area of Cycloids. *The American Mathematical Monthly* 127:6, 537-544.

Tech stacks: Python, TikZ, and LaTeX

Miscellaneous

SNULife *Apr 2018—Present*

Development head of SNULife, the web community for Seoul National University with 180k+ monthly visitors

• Created an iOS app for planning timetables and sharing lecture reviews, used by 5k+ users

Korean TEX Society (KTS) *Jun 2019—Present*

As a member of the Korean TEX Society, I have given a few talks including:

• Drawing tables with `tabularray`, 2022 KNU LATEX Workshop

• Asymptote: The Vector Graphics Language, 2022 KNU LATEX Workshop

• The "key-value" structure in LATEX, 2021 KNU LATEX Workshop

• `beamer`: Content-focused Presentation, 2020 KNU LATEX Workshop

• TEXnical Vim, 2020 KTS Conference

• `memoir`: chapter style, 2019 KNU LATEX Workshop

ROK Army *Jun 2020–Dec 2021*

Served and discharged from ROK Army as a signaller, sergeant

Student Representative *Mar 2018–Dec 2018*

Student representative of the Department of Electrical and Computer Engineering

Korea Young Physicists' Tournament (KYPT 2016/2017) *Jun 2016–Jan 2017*

Team lead, won a gold medal in KYPT 2017 & a bronze medal in KYPT 2016 *Jun 2017–Jan 2018*

Natural Languages

Korean (native), **English** (fluent), **Spanish** (elementary)