

# YONGJIN HAN

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## Summary

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I am interested in program verification, program synthesis and program analysis for reliable and secure software. Also, I conducted several projects that I have worked on as a research assistant, including two projects sponsored by the National Research Foundation of Korea.

## Education

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B.E. in Computer Science and Engineering, Dongguk University. 02/2021

Gap year from summer 2017 to spring 2019 due to military service.

## License

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Industrial engineer information security in Korea in 2016

## Experience

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**Research assistant, Programming Language and Secure Software lab in Dongguk University** 07/2019 - Present

Researching on compiler including VM interpreter and secure software

**President, Computer Security Club in Dongguk University** 03/2020 - 02/2021

Leading a security group focusing on system hacking, pwnable.

**CERT (Computer Emergency Response Team), Republic of Korea Army** 08/2017 - 05/2019

Monitoring traffic, intrusion detection logs such as DDOS, spoofing, and viruses

Dealing with computer emergent accidents

Auditing other soldiers from staff sergeant to lieutenant colonel whether they consistently comply with security rules or not.

## Research and Project

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**(Project sponsored by the National Research Foundation of Korea) Development of the Distributed Virtual Machine and the Intelligence Offloading Method for A Smart Edge Computing** 03/2020 - 02/2021

- Developing VM interpreter
- Optimizing VM interpreter with lazy evaluation

**(Project sponsored by the National Research Foundation of Korea) Smart Community Policing system**

03/2020 - 02/2021

- Developing predictive policing system with ETAS (Epidemic Type Aftershock Sequence) model and machine learning
- Designing crime magnitude scoring model to convert crime events to earthquake events

**(Research) Reduction in test case to evaluate and improve performance of static analyzer**

03/2020 - 02/2021

- Analyzing how released static analyzers detect vulnerabilities
- Implementation a tool to find vulnerable codes area using data flow analysis with LLVM

**(Student project) Automated Debugging with Program Synthesis and Fault Localization**

03/2020 - 12/2020

- Team leader of the project
- Designing a whole process of the automated debugger
- Implementation program synthesizer to correct selected bug code

**(Project) Developing self-educating system about secure software in web application**

01/2020 - 02/2020

- Implementation backend as REST API using Django to handle requests from user transactions

**(Student Research) A Research on weakness analysis technique based on SMT solver**

09/2019 - 12/2019

- Implementation integer buffer overflow analyzer using z3, SMT solver

**Presentation and Paper**

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Yongjin Han, Soo-Lyn Choi, Sun-Young Ihm, and Yunsik Son, "A Predictive Policing with Epidemic Type Aftershock Sequence Model," In Proceedings of the 2nd International Conference on SMART Policing Convergence, Seoul, Oct 22, 2020.

Yongjin Han, Soo-Lyn Choi, JoongYeon Lim, Sun-Young Ihm. "A Research on the Prediction of Outside Accident of the Troops based on Earthquake Analysis Model." Korean Journal of Military Art and Science. Vol 76.3. pp 119-144. 2020.

Yongjin Han, Seokmin Chang, Yunsik Son. "A Study on the Virtual Machine Performance Optimization Using Lazy Evaluation." Korea Multimedia Society Conference. Aug 11, 2020.

**Teaching Experience**

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Class Tutor, Compiler Construction

09/2020 - 12/2020

Class Tutor, Programming Language and Theory

09/2020 - 12/2020

## **Award and Scholarship**

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Senior scholarship in Introduction to the Capstone Design Course 1, 2020

Best Paper, Summer Conference by Korea Multi Media Society, Korea Federation of Information Technology Societies, 2020

A silver prize, Programming Contest, Dongguk University, 2017

A bronze prize, Programming Contest, Dept of CSE, Dongguk University, 2016