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Dear Hiring Manager:

Currently, I am a Ph.D. student in the Department of Computer Science at Virginia Tech, advised by Prof. Eli Tilevich. I plan to complete my degree in May 2021.

My research is to facilitate the evolutionary modifications of web services (**REST APIs**) via automatic and architectural *refactoring tools*. I found that programmers with our tools can efficiently and automatically fix bugs and optimize their distribution granularity in **distributed web services**. It also dynamically replicates/allocates cloud web services into different machines for **fault-resilient** or responsiveness executions (related to **Serverless computing**). My approach improves software engineering's latest ideas such as declarative program analysis, fuzzing/checkpointing execution, and program transformation. My research work was published in **WebConf 2020***,* one of the top-tier CS conferences. And other projects were **nominated for the best paper awards twice**.

During three semesters of GTAs in Virginia Tech, I was the main developer to build a core course project for the CS department called ' Understanding Heap spraying Attack'. I mainly developed a victim server (C++ addons) by extending JavaScript **Virtual machine** V8. During five semesters, I kept enhancing the teaching frameworks, including grader and submission site (python, bash scripts), by applying a variety of requirements and expectations. For GRAs in Virginia Tech, I participated in the project for developing LLVM C/C++ compiler tools to automate distributing embedded applications to support the safety of applications by using the optee-os Environments. I contributed to integrating ARM-based build systems *of very complex two* Operating Systems; the PX4-Autopilot firmware and optee-os.

Before joining Virginia Tech, I also have a strong background in **Networking** and **Distributed systems** by studying a master's course and working with two companies in South Korea. During GRA in POSTECH, I studied an efficient cross-layer protocol (TCP/UDP) to transmit video data over the ad hoc network, where I implemented the system in ns-2 (a network simulator, C/C++ platform) and H.264/AVC JM. Then, I worked in SK telesys as a system software engineer for 3.5 years, where I developed and optimized networking protocols of commercial VoIP systems, 3·4G, and WiFi productions. Then, I was a software engineer in a Korean national lab KIST to develop a scalable distributed web system for interactive robot services, including 3D Simulator (python, C/C++), Web-based UIs, and other networking modules (python, C/C++).

I have various experiences as a Software Engineer with full-stack ownership. I am confident I can make an immediate contribution to this challenging job and I look forward to learning more about it.

Sincerely,
Kijin An