

Open-source enthusiast and hacker specializing in web technology and Linux-based systems. A WebKit and GNOME project contributor. More than 8 years of experience at major players in the industry. Looking for opportunities in the Web browser, Web Security & Privacy, Browser Security, Kernel, and Computer Graphics.

Skills WebKit, Blink/Chromium, GNOME, Linux, C/C++, Python, HTML/CSS/Javascript, Objective-C, Java, OpenGL/OpenGL ES, Clutter, Computer Graphics, GTK+, eBPF, BCC, Ethereum, Git, OBS, Clang, LLVM, GStreamer, Tizen, Linux Perf, Bluetooth LE, ReactJS, React Native, Embedded system, Puppeteer

Education

08/2017 - present **Ph.D.** student (ABD, Advisor: [Prof. Paul Pearce](#)) in Cybersecurity & Privacy, **Georgia Tech, U.S.A**
08/2017 - 08/2019 **M.S.** in Computer Science (Computer Systems, GPA: 3.87 / 4.0), **Georgia Tech, U.S.A**
03/2000 - 06/2008 **Dual B.E.** in Digital Media and Computer Engineering, **Ajou University, South Korea**

Professional Experience

06/2019 - present **Intern at Igalia, S.L.** in A Coruña, Spain
• Bring ANGLE backend for WebGL to WebKitGTK
• Zero copy texture sharing between Mesa and ANGLE via Linux DMA buffer
• Research Text-To-Speech technologies to employ for WebKitGTK
05/2020 - 08/2020 **Intern at Samsung Research America** in Mountain View, CA
05/2019 - 08/2019
• Build a web app for health data analysis with ReactJS (frontend) and Node.js (backend)
• Built an automated system verifying the UI of a watch app by using the Tizen automation framework
• Profiled memory usage and revealed possible memory leak of a watch app by using Valgrind
• Implemented file transfer via Bluetooth LE in a React Native watch application
08/2012 - 03/2016 **Software engineer at Collabora Ltd.** in Cambridge, UK
• Developed hardware-based compositing based on Clutter in WebKit
• Resource-efficient web browser based on GNOME Epiphany for Raspberry Pi 2+
• Customized WebKit features and API set for Smart TV Alliance SDK
07/2008 - 08/2012 **Assistant Software engineer at Samsung Electronics** in Suwon, South Korea
• Developed an in-house web layout engine for Smart TVs, Printers in C++
• Implemented WebGL and Accelerated Compositing in WebKit EFL by using OpenGL ES for Tizen
07/2007 - 06/2008 **Intern at Samsung Software Membership** in Suwon, South Korea
• Developed a 3D racing game using DirectX on Windows ([video](#))

Academic Experience

05/2021 - 08/2021 **Research Intern at Tandon School of Engineering, New York University**
• Research an online ad privacy issue with [Prof. Damon McCoy](#)
08/2019 - 05/2021 **Teaching Assistant at School of Computer Science, Georgia Tech**
• CS 6262: Network Security, Design and Implement the XSS task using node.js and Chrome Extension
• CS 6035: Intro to InfoSec
08/2017 - present **Research Assistant at School of Computer Science, Georgia Tech**
• Study privacy leakage in online ads
• Redesign chromium to block user tracking by web browser fingerprints
• Debloat chrome browser with feature sunsetting on the fly by binary rewriting
• Developed a defense system against micro DDoS by profiling resources with HPC (Intel PCM, MBM)
• Implemented an idle profiler that diagnoses off-CPU time in the multi-threaded programs using HPC

Open Source Projects

04/2013 - present **Committer at WebKit** ([patches](#))
• Implement several web features for WebKitGTK (e.g., Form validation, Gamepad API with libmanette, AVIF support with dav1d, Web Speech with Flite, etc)
• Implement OpenGL ES backend for Accelerated Compositing.
• Developed memory pressure handler that copes with out-of-memory on top of Linux cgroup.
• Enhance WebGL support and Fix layout and rendering issues
• Fix CVE security bugs in WebKit ([CVE-2020-10018](#), [CVE-2020-11793](#))
10/2013 - present **Member at GNOME Foundation** ([patches](#))
• Translate GNOME Web and its Help document in Korean
01/2015 - present **Contributor at Chromium/Blink** ([patches](#))
• Implemented a CSS spec called font-size-adjust
• Fix layout and rendering issues in Blink

Publication

CCS 2020 **[Slimium: Debloating the Chromium Browser with Feature Subsetting](#)** ([paper](#))

arXiv:2205.00056	Mitigating Low-volume DoS Attacks with Data-driven Resource Accounting (paper)
Patents	
US 20110296323	Web page management method and apparatus and storage medium thereof
US 20110289110	Method of re-searching webpage and apparatus and storage medium therefor
US 20110093606	Interface method and display device
US 20110090165	Interface method and display device
Talks	
12/07/2014	Web Engines Hackfest 2014 in A Coruña, Spain (slides)
09/29/2014	DEVIEW 2014 in Seoul, South Korea (slides , video)
04/25/2014	Jeju University in Jeju, South Korea (slides)
10/27/2013	DevOn 2013 in Seoul, South Korea (slides)
Service	
10/2021	Mentoring participants in the Open-source SW Developer Competition in South Korea

Last updated: 05/02/2022