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ChangSeok Oh

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Open-source hacker and security researcher specializing in web and computer systems. A WebKit, Chromium, and GNOME project contributor. 9 years of industry and 7 years of academic experience. Looking for opportunities in the Web browser, Emerging Web, Browser Security, Web Security & Privacy, 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 - 12/2022	**Ph.D. student (ABD)** in Computer Science, **Georgia Institute of Technology, U.S.A.**
08/2017 - 12/2022	**Dual M.S.** in Computer Science and Cybersecurity, **Georgia Institute of Technology, U.S.A.**
03/2000 - 06/2008	**Dual B.E.** in Digital Media and Computer Engineering, **Ajou University, South Korea**

Professional Experience

01/2023 - Present **Sr. Software Engineer at ByteDance/TikTok Ltd.** in Mountain View, CA
- Working on the Web Platform
- Representing ByteDance at the W3C Working Groups: CSS, Performance, WebApp Sec, and Privacy

06/2019 - 12/2022 **Intern at Igalia, S.L.** in A Coruña, Spain (cert.)
- 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

01/2023 - Present **Instructional Associate at OMSCS, Georgia Tech**
- CS 6262: Network Security

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 - 05/2022 **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
- Implemented an idle profiler that diagnoses off-CPU time in the multi-threaded programs using HPC

07/2016 - 08/2017 **Research Associate at School of Computer Science, Georgia Tech**
- Developed a defense system against micro DDoS by profiling resources with HPC (Intel PCM, MBM)

Open Source Projects

04/2013 - Present **Committer to WebKit** (patches)
- Contribute CSS properties (e.g., font-size-adjust)
- Contribute several web features for WebKitGTK (e.g., Form Validation, Gamepad API with libmanette, AVIF support with dav1d, Web Speech Synthesis with Flite and GStreamer, 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 of GNOME Foundation** (patches)
- Translate GNOME Web and its Help document in Korean

01/2015 - Present	**Contributor to Chromium/Blink** (patches)
	● Implemented CSS properties (e.g., font-size-adjust)
	● Fix many layout and rendering issues in Blink

Publications

ACSAC 2022	DeView: Confining Progressive Web Applications by Debloating Web APIs (paper)
ACM CCS 2022	Cart-ology: Intercepting Targeted Advertising via Ad Network Identity Entanglement (paper)
ACM 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

12/09/2022	ACSAC 2022 in Austin, TX, U.S.A. (slides)
11/09/2022	ACM CCS 2022 in Los Angeles, CA, U.S.A. (slides)
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 student participants in the Open-source SW Developer Competition, South Korea (citation)

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