

# Yusuke Suzuki

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<b>Research Interests</b>	System software, Web browsers, JIT compilers, Operating systems, Virtual machine technology, Distributed/Parallel systems and Graphic Processing Units (GPUs)
<b>Education</b>	<p><b>Ph.D. student in Computer Science</b> <i>Apr. 2015 – (expected Mar. 2018)</i> Supervisor: Prof. Kenji Kono Keio University</p> <ul style="list-style-type: none"><li>Integrating GPUs into system software abstractions and coordinating GPUs and the other devices.</li></ul> <p><b>M.E. in Computer Science</b> <i>Apr. 2013 – Mar. 2015</i> Supervisor: Prof. Kenji Kono Keio University Master Thesis: <i>Design and Implementation of GPU Virtualization at the Hypervisor</i></p> <ul style="list-style-type: none"><li>Designed open architecture of GPU virtualization using Xen. Built a prototype of fully virtualized GPUs and multiplexed virtualized GPUs.</li></ul> <p><b>B.E. in Computer Science</b> <i>Mar. 2013</i> Supervisor: Prof. Kenji Kono Keio University Bachelor Thesis: <i>GPU Virtualization for General-purpose computing</i></p> <ul style="list-style-type: none"><li>Investigated GPU internals and interactions between GPUs and OS.</li></ul>
<b>Awards and Honors</b>	<p><b>Yamashita SIG Research Award</b> <i>Mar. 2015</i> Information Processing Society of Japan</p> <p><b>Best Student Presentation Award</b> <i>Dec. 2013</i> SIGOS, Information Processing Society of Japan</p> <p><b>Yamauchi Prize for Encouragement</b> <i>Jan. 2013</i> Information Processing Society of Japan</p> <p><b>Nakanishi Award</b> <i>Mar. 2013</i> Keio University</p>
<b>Teaching Experience</b>	<p><b>Teaching Assistant</b> <i>Apr. 2015 – Sept. 2015</i> PROGRAMMING 1, COMPUTER SCIENCE Keio University</p> <ul style="list-style-type: none"><li>Supported for teaching C programming.</li><li>Helped students with programming.</li><li>Graded their reports.</li></ul> <p><b>Teaching Assistant</b> <i>Apr. 2014 – Sept. 2014</i> PROGRAMMING 1, COMPUTER SCIENCE Keio University</p> <ul style="list-style-type: none"><li>Supported for teaching C programming.</li><li>Helped students with programming.</li><li>Graded their reports.</li></ul>

	<p><b>Teaching Assistant</b> PROGRAMMING 1, COMPUTER SCIENCE</p> <ul style="list-style-type: none"> <li>• Supported for teaching C programming.</li> <li>• Helped students with programming.</li> <li>• Graded their reports.</li> </ul>	<p><i>Apr. 2013 – Sept. 2013</i> Keio University</p>
<p><b>Work Experience</b></p>	<p><b>Research Fellowships of the Japan Society for the Promotion of Science for Young Scientists; DC1</b></p>	<p><i>Apr. 2015 – (expected Mar. 2018)</i> Japan Society for the Promotion of Science</p>
	<p><b>Software Engineering Intern</b></p> <ul style="list-style-type: none"> <li>• At WebKit architecture team, accelerate DOM operations by handling them in JavaScriptCore JIT tiers.</li> </ul>	<p><i>Aug. 2016 – Nov. 2016</i> Apple Inc.</p>
	<p><b>Software Engineering Intern</b></p> <ul style="list-style-type: none"> <li>• At WebKit architecture team, developed ECMAScript 6th Modules including loading and execution semantics. And enhance the other features of ES6 like the Reflect module.</li> </ul>	<p><i>July 2015 – Sept. 2015</i> Apple Inc.</p>
	<p><b>Software Engineering Intern</b></p> <ul style="list-style-type: none"> <li>• At Google Chrome team, developed ECMAScript 6th Promises and optimized XMLHttpRequest Blob transferring. Created 30~ patches and became a Chromium committer.</li> </ul>	<p><i>Aug. 2013 – Sept. 2013</i> Google Japan Inc.</p>
	<p><b>Part-time Programmer</b></p> <ul style="list-style-type: none"> <li>• Developed iOS application by using Objective-C. And implemented JavaScript modules used on their web service.</li> </ul>	<p><i>Oct. 2010 - July 2013</i> Cloudstudy Inc.</p>
<p><b>Activities</b></p>	<p><b>WebKit</b> Reviewer</p> <ul style="list-style-type: none"> <li>• Contributed to WebKit CSS JIT, that just-in-time compiles CSS selector to machine code to make matching against elements faster. Mainly focused on more intelligent backtrackig.</li> <li>• Implemented ES6 features like Symbols into JavaScriptCore and now improving it.</li> </ul>	
	<p><b>Chromium</b> Committer</p> <ul style="list-style-type: none"> <li>• Worked on Google Chrome and Blink as software engineering intern as <a href="mailto:yusukesuzuki@chromium.org">yusukesuzuki@chromium.org</a>.</li> <li>• Improved Blob data handling in XMLHttpRequest.</li> <li>• Landed the initial implementation of ES6 Promises in the Blink side.</li> </ul>	
	<p><b>iv/lv5</b> Building ECMAScript engine from scratch</p> <ul style="list-style-type: none"> <li>• Built the new ECMAScript engine that conforms ECMA262 5.1th spec.</li> </ul>	<p><a href="https://github.com/Constellation/iv">https://github.com/Constellation/iv</a></p>

- Found and reported many bugs in the spec and Test262 conformance suite.
- Implemented baseline JIT compiler for x86\_64 environment including Inline Caches.

### **Escodegen, Esmangle, Estraverse etc.**

ECMAScript language tools <https://github.com/estools/escodegen>

- Built an infrastructure of ECMAScript tools using Mozilla JavaScript AST.

### **Computer Skills**

Languages: ECMAScript, Python, CSS Selectors, C, C++,  
x86, x86\_64 assembly language

Platforms: Linux, OSX

### **Blog Posts**

Barati, S., **Suzuki, Y.**, Pizlo, F. JSC loves ES6. *WebKit blog*, <https://webkit.org/blog/7536/>, June 2017.

### **Publications**

#### **Refereed Papers**

**Suzuki, Y.**, Yamada, H., Kato, S., and Kono, K. Towards Multi-tenant GPGPU: Event-driven Programming Model for System-wide Scheduling on Shared GPUs. In *The 2016 Workshop on Multicore and Rack-scale Systems (MaRS '16)*, April 2016.

**Suzuki, Y.**, Kato, S., Yamada, H., and Kono, K. GPUvm: Why Not Virtualizing GPUs at the Hypervisor?. In *Proceedings of the 2014 USENIX Annual Technical Conference (USENIX ATC '14)*, pp. 109–120, June 2014.

#### **Refereed Journal Papers**

**Suzuki, Y.**, Kato, S., Yamada, H., and Kono, K. GPUvm: GPU Virtualization at the Hypervisor. *IEEE Transactions on Computers*, vol. 65, no. 9, pp. 2752–2766, Sept. 2016.

#### **Non-Refereed Papers**

**Suzuki, Y.**, Kato, S., Yamada, H., and Kono, K. GPU の完全仮想化. Summer United Workshops on Parallel, Distributed and Cooperative Processing (SWoPP '13), pp. 195–202, July 2013.

**Suzuki, Y.** Escodegen and Esmangle: Using Mozilla JavaScript AST as an IR. Industry Track of Aspect-Oriented Software Development (AOSD '13), Mar. 2013.

#### **Non-Refereed Posters**

**Suzuki, Y.**, Kato, S., Yamada, H., and Kono, K. Design and Implementation of GPU Virtualization at the Hypervisor. JSSST Dependable System Workshop (DSW '14), Mar. 2014.

**Suzuki, Y.**, Kato, S., Yamada, H., and Kono, K. GPUvm: ハイパーバイザによるGPUの完全仮想化手法. JSSST Dependable System Workshop (DSW '13), Dec. 2013.

**Suzuki, Y.** Building modern JavaScript Engine. 2012 IPSJ Programming Symposium, Jan. 2012.