

# Justin Cheung

SOFTWARE ENGINEER

📧 TODO | ✉️ TODO | 🏠 j43cheun.github.io | 📺 j43cheun | 📄 j43cheun

## Technical Skills

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| <b>Programming</b>       | C/C++, C#, PowerShell, Java, Python, Bash              |
| <b>Platforms</b>         | Windows, Unix/Linux                                    |
| <b>Development Tools</b> | Git, WinDbg, VS Code, Visual Studio, Eclipse, Selenium |
| <b>Web</b>               | CSS, HTML, JavaScript, Vue.js, npm                     |

## Experience

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### Microsoft Corporation

Redmond, WA, USA

SENIOR SOFTWARE ENGINEER - STORAGE SPACES DEV TEAM

Sep. 2015 - Present

- **Granular Repair:** Optimized in-place virtual disk repair (resilvering) on Storage Spaces Direct (S2D) clusters by implementing driver and metadata support for tracking stale data copies at stripe unit granularity (e.g., 256 KiB) vs. extent granularity (e.g., 1 GiB), which led to an order of magnitude reduction in runtimes (e.g., from hours to minutes).
- **Nested Resiliency:** Implemented driver support for deploying and managing virtual disks with node-mirrored mirror and node-mirrored parity resiliency configurations to enable virtual disks to tolerate 1 node + 1 drive failures on 2-node S2D clusters vs. the typical 1 node fault tolerance in order to further reduce the propensity for virtual disk downtime on 2-node S2D clusters.
- **Diskstream:** Implemented a .NET Standard dynamic-link library (DLL) in C# to enable the HoloLens 2 emulator to modify the virtual machine disk image in a user mode sandbox without requiring the disk image to be mounted on the host operating system.

## Internships

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### IBM Canada Ltd.

Markham, ON, Canada

COMPILER OPTIMIZATION DEVELOPER

Sep. 2014 - Dec. 2014

- Assisted with implementing an instruction translator for translating LLVM IR to an intermediate representation used by IBM's XL C/C++ compilers.
- Expanded the test coverage for IBM's LLVM IR translator by implementing a program in C++ to impersonate IBM's XL C/C++ compiler test drivers so that existing test buckets for IBM's XL C/C++ compilers could be reused for validating IBM's LLVM IR translator.

### Citigroup Inc.

Mississauga, ON, Canada

OPERATIONS TECHNOLOGY DEVELOPER

Sep. 2013 - Dec. 2013

- Automated an hourly bookkeeping workflow at Citigroup by implementing a small program in Java to scrape financial data from a website using Selenium and format the data to Excel spreadsheets, and deploying this program hourly using Jenkins. This effort ended up saving a bookkeeper over an hour a day otherwise spent entering the data by hand.
- Reduced time cost of validating Citigroup's Global Stock Record (GSR) web app by automating black-box testing using Java and Selenium.
- Provided consultation to other developers to scale GSR's automated black-box test framework for validating other Citigroup web apps.

### Nav Canada

Ottawa, ON, Canada

SYSTEM SOFTWARE DEVELOPER

Apr. 2012 - Aug. 2012

- Assisted with porting an air traffic control software build distribution tool from HP-UX to a Java ICEFaces web app hosted on a Red Hat Linux server.
- Reduced the learning curve and improved quality of life around using the new air traffic control software build distribution tool by automating steps in the build distribution workflow that previously had to be executed manually using the old tool.

## Patents

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### Multilevel Resiliency

KARAN MEHRA, JUSTIN SING TONG CHEUNG, VINOD R. SHANKAR, GRIGORY BORISOVICH LYAKHOVITSKIY

Oct. 20, 2020

- Application Number: US 16/389,605. Publication number: US 10809940.

## Education

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### University of Waterloo

Waterloo, ON, Canada

BACHELOR OF APPLIED SCIENCE IN COMPUTER ENGINEERING

Sep. 2010 - Apr. 2015