

# Matthew Do

Code [github.com/minhnhdo](https://github.com/minhnhdo)

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## Work Experience

**Viki Inc. ([viki.com](https://viki.com))** – DevOps Engineer **May 2016 – June 2017**

- Developed a development environment (codenamed nDev) capable of running the whole Viki infrastructure on one machine, based on Docker in Docker and PPTP for VPN
- Maintained uptime of all Viki infrastructure

**Leadbook Pte Ltd ([leadbook.com](https://leadbook.com))** – Software Engineer **Jun 2015 – Apr 2016**

- Simplified codebase by removing overdesigned and redundant subsystems
- Implemented optimizations
  - Reduced page load time for list view of data by 4 times by not rendering redundant data
  - Reduced request serving time for bulk operations by 100 times by using bulk update and partial record/document update APIs

**Viki Inc. ([viki.com](https://viki.com))** – Platform Engineer **Jun 2014 – May 2015**

- Containerized services for speedy recovery measures, easy deployment and better security (brought down deployment time from 20 minutes to 5 minutes)
- Worked with Amazon S3, Redis, RabbitMQ, PostgreSQL, Ruby and CoffeeScript to deliver high performance backend API for hosting celebrities information on Viki in order to increase viewer engagement (see [viki.com/celebrities](https://viki.com/celebrities) for an example)
- Maintained and improved uptime of [api.viki.io](https://api.viki.io), the backend API for Viki products (website, iOS, Android, Samsung TV clients, etc.) and third party clients ([wuaki.tv](https://wuaki.tv), [tempo.co](https://tempo.co), [myasianTV.com](https://myasianTV.com), etc.)
- Developed integration testing tool for multi-service black box testing

**Leadbook Pte Ltd ([leadbook.com](https://leadbook.com))** – Software Engineer Intern **Jun 2013 – Aug 2013**

- Installed and maintained the company's servers on EC2 instances
- Developed a data importer from CSV to MongoDB, achieving speed twice as fast as Pentaho's

**Ubisoft Singapore Pte Ltd (Assassin's Creed IV: Black Flag)** **Jul 2012 – Dec 2012**

Intern Programmer

- Implemented internal tools to be used by level designers
- Prototyped automatic camera system for the official game

## Projects

**PGo** – distributed system compiler for PlusCal model checking language **Oct 2017 – May 2019**

- PlusCal is an model checking language based on TLA+ ([lampport.azurewebsites.net/tla/pluscal.html](http://lampport.azurewebsites.net/tla/pluscal.html))
- PlusCal specifications can be checked with TLC, part of the TLA+ toolbox
- PGo translates PlusCal specifications to distributed Go programs

**doco** – documentation generation using static and dynamic analysis **Mar 2018**

- doco generates, as code comments, pre- and post-conditions for Java methods using static analysis, dynamic analysis, and Rust

**Undergraduate Final Year Project** **Jan 2014 – May 2014**

- Extended Micrium  $\mu$ C/OS-III, a real-time operating system for embedded devices
- Implemented Earliest Deadline First scheduler
- Added recurrent tasks
- Implemented a deadlock avoiding synchronization primitive

**status** – extensible static site generator in Clojure **Dec 2013**

- Pipelined architecture with focus on extensibility

**Mozilla's Rust compiler** – open source contributor **Jul 2013 – Sep 2013**

- Removed unnecessary misfeatures from the standard library

- Added signal handling support to the standard library

## **PyScheme – Scheme interpreter in Python**

**Dec 2011**

- Developed this in three days after reading The Little Schemer
- Demonstrated comprehension of concepts in functional programming

## **Education**

### **University of British Columbia**

**Sep 2017 – May 2019**

#### Master of Science (Computer Science)

- Teaching assistant
  - Functional and Logic Programming: helped students learn to program in Prolog and Haskell
  - Distributed Systems: helped students build distributed systems (most notably a blockchain implementation, as well as Raft and Paxos implementations), and built automated grader for assignments
- Research assistant
  - PGo: a distributed system compiler from PlusCal to Go

### **Nanyang Technological University**

**Aug 2010 – May 2014**

#### Bachelor of Engineering (Computer Science)

- Teaching assistant (developed lab manual materials)

## **Initiatives**

### Grokking Engineering ([grokkingengineering.org](http://grokkingengineering.org)) – Organizing Team

**Oct 2014 – Sep 2017**

#### Building a community of good software engineers in Vietnam

- Organized talks and coding challenges to help raise the bar for software engineers in Vietnam
- Experimented with new ways to deliver vision

### NTU Open Source Society – Vice President

**Aug 2012 – Apr 2014**

- Organized workshops to spread technical knowledge to NTU student body
- Promoted software development in NTU

### NTU Open Source Society – Technical Director

**Sep 2011 – Aug 2012**

- Organized Software Freedom Day celebration in NTU
- Gave presentation on Ubuntu basics in Ubuntu Install-fest

## **Skills**

### Programming Languages Tools

**Rust, Go, Ruby, CoffeeScript, JavaScript, Clojure, Python, C, C++, Java**  
**vim, git, Redis, RabbitMQ, docker, fabric, linux**