

JOSHUA BAKITA

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https://jbakita.me/

EDUCATION

Master of Science in Computer Science, *University of North Carolina at Chapel Hill* Aug. 2018 - May 2019

• Courses of Note: Computer Vision (w/ Alex Berg), OS Impl, Data Center Sys & Programming, Real-Time Sys, Robotics

Bachelor of Science in Computer Science, *University of North Carolina at Chapel Hill* Aug. 2014 - May 2018

• **Graduated with Honors** | 3.57 Computer Science Course GPA | Fall 2016 Honors Study Abroad in London

• Courses of Note: Digital Logic & Computer Design, Computer Security, Data Compression, 2D Graphics, OS

TECHNICAL EXPERIENCE

Research Assistant with Dr. James Anderson, *Dept. Computer Science - UNC Chapel Hill* Aug. 2017 - Current

- Helped invent system-level optimization techniques to losslessly improve computer vision CNN throughput by over **2x**
- Constructed techniques to provide formal real-time guarantees for programs using SMT or **CUDA**
- Published as **1st author** at OSPERT '18, 2nd author at ECRTS'19, 3rd author at RTAS'19, and 4th author at ECRTS'18

Teaching Assistant for Programming Lang. Concepts, *Dept. Computer Science - UNC Chapel Hill* Jan. 2019 - May 2019

- Taught **Haskell**, **Rust**, **FORTRAN**, and **Go** to illustrate fundamental programming language concepts
- Honored with "Teaching Assistant of the Year" award by CS undergraduates and faculty. Nominated by >30% of my class.

Software Engineering Intern, *Microsoft*, Redmond, WA May. 2018 - Aug. 2018

- Worked in **C++** on the Web Platform Team to help build the Edge browser (>**100 million active users**) +Windows app APIs
- Implemented CSS parser, DOM interface, and **GPU-accelerated rendering** for background-blend-mode and mix-blend-mode (used by .04% and .111% of all web pages per Bing. both are top 55% most used CSS properties)
- Wrote web platform interoperability tests in **HTML**, **CSS**, and **JavaScript** to benchmark and beat Chrome's implementation

Software Engineering Intern, *Microsoft*, Issaquah, WA May 2017 - Aug. 2017

- Redesigned architecture for lead unsubscribe, **increasing speed 2x** for customer and protecting from **over \$3B** in fines
- Worked in **C#** and **SQL** on enrichment and privacy management systems processing over **16 million leads** weekly
- Upgraded, unified, and simplified logging in lead enrichment and privacy sync systems to enable business alerting

Parliamentary Intern for James Berry MP, *House of Commons*, London, UK Sep. 2016 - Dec 2016

Software Engineering Intern (TDP), *Capital One*, McLean, VA June 2016 - Aug. 2016

- Executed several architectural projects which **sped up deployment 10x**, startup by 2x, and testing by ~2x
- Worked on the free credit monitoring tool CreditWise which serves **over 11 million active users**
- Full stack **agile** development in **Java**, **Spring MVC**, and **AngularJS** on Apache Tomcat with some **CSS** and **HTML**
- Reworked the login architecture to operate seamlessly across both development and production (AWS EC2) environments
- Optimized test workflow, removed all proprietary libraries, and significantly refactored down backend codebase size

Research Assistant with Dr. Henry Fuchs, *Dept. Computer Science - UNC Chapel Hill* June 2015 - Dec. 2015

- Led a team of undergraduates researching the use of wearable accelerometers for exercise monitoring and eldercare
- Wrote embedded C for the Pebble and Arduino to gather data alongside **Java** on **Android** to offload and display data
- Open-sourced resultant code which is already used by researchers in the Netherlands studying Parkinson's disease

Open-Source Game Developer, *Wildfire Games*, International Team June 2013 - Aug. 2014

- Led a team to develop an online multiplayer matchmaking lobby and ranking system based on XMPP for 0 A.D. RTS
- Worked with **C++**, **JavaScript**, and XML client-side, **Python** and **Erlang** server-side

INDIVIDUAL PROJECTS AND OTHER AWARDS

MIPS I Processor: Full implementation of the MIPS I instruction set using Verilog on the Nexys 4 FPGA (supports GCC)

SafeShare: A vehicle-sharing platform built on mathematically verifiable trust via the Ethereum blockchain

- Won **Best Use of the Blockchain**, **Best Hack Addressing Inequality** and two other awards at HackDuke 2017

SGI Keyboard Driver: A Linux kernel module implementing support for SGI's serial keyboards (reverse engineered)

UNC Energy Dashboard: A way to monitor and react to energy usage on-campus | **Won Microsoft Challenge** at HackNC '15

Share Sphero: Cross-platform, multi-user, online, real-time control of the Sphero robot

EXTRACURRICULARS

Project Manager, *Renewable Energy Special Projects Committee (RESPEC)*, Chapel Hill, NC Sep. 2014 - May 2019

- Collaborate with a committee of over 15 students to **manage over \$1M** for renewable energy initiatives on campus

President, *UNC Computer Science Club*, Chapel Hill, NC

May 2017 - Aug. 2018

Mexico Missions Trip Volunteer, *Rancho 3M Christian School and Orphanage*, Guadalupe, Mexico 2010,11,13,15,16,19

Eagle Scout; Boy Scouts of America, *Troop 94*, Charlotte, NC

2007 - 2014