

## 🎓 Education

### Carnegie Mellon Class of 2016 — *B.S. Computer Science* — 3.4/4.0

- Minor in Human-Computer Interaction
- Relevant coursework: Algorithm Design and Analysis, Cloud Computing, Cognitive Robotics, Complexity Theory, Human-Robot Interaction, Interaction Design Overview, Science of the Web

## 👜 Experience

### National Security Agency — *Stokes Scholar*

Holder of TS//SCI clearance with special background investigation and polygraph

Summer 2013	<b>Remote &amp; Deployed Operations</b> <ul style="list-style-type: none"><li>• Developed Windows anti-malware software<ul style="list-style-type: none"><li>◦ Used infection markers to enable lightweight, fast, and accurate detection and neutralization of known malware</li><li>◦ Heuristically analyzed and tagged potential infection markers</li></ul></li><li>• Created an intuitive network traffic visualizer, allowing analysts to more easily notice anomalous behavior</li></ul>
Summer 2014	<b>Data Network Technologies</b> <ul style="list-style-type: none"><li>• Designed and developed CNE operations tool for collection of computer-to-computer communications</li><li>• Designed and implemented secure communications protocol</li></ul>
Summer 2015	<b>Trusted Systems</b> <ul style="list-style-type: none"><li>• Designed and implemented a software keyboard for Android devices that operates in the TrustZone secure environment</li><li>• Ported IMA (Integrity Measurement Architecture) to Android<ul style="list-style-type: none"><li>◦ Partially implemented the Trusted Platform Module (TPM) standard in the TrustZone secure environment</li><li>◦ Developed a kernel driver to interface with the software TPM</li><li>◦ Created TrustZone secure application to sign and certify the IMA measurement list</li><li>◦ Created a system service enabling Android remote attestation</li></ul></li></ul>

## </> Projects

April 2015	Created <b>espresso</b> , a deep learning framework designed to produce maintainable yet highly performant code compatible with <b>Caffe</b> .
July 2014	Wrote <b>Ties</b> , an Android application that helps people stay in touch.
April 2014	Implemented <b>computer stereo vision</b> using semi-global block matching.
Feb 2014	Created <b>MiniPlay</b> , a Chrome extension for web music players with over 500 daily users.
Aug 2013	Built a <b>dynamic threadpool</b> in modern C++11 to fill the gap in the C++ STL between <code>std::async</code> and <code>std::thread</code> .
April 2013	Wrote a high-performance Skein-1024 (SHA-3 candidate) <b>hash cracker</b> for the <b>xkcd Alma Mater challenge</b> .
Sept 2012	Developed <b>Chroma</b> , an Android application designed to help colorblind people distinguish between the entire color spectrum.
2010-2012	Led development of <b>eva</b> , software for an autonomous submarine, including computer vision, state machines, and control systems.

## Languages

C++14  
C  
Java  
Javascript  
Python  
x86  
Rust

## Technologies

Cryptosystem design  
\*nix kernel development  
OpenMP/Open MPI  
SIMD  
CUDA/OpenCL  
OpenCV  
Embedded systems

## Web

HTML  
SASS/CSS  
Angular.js  
Node.js  
Socket.IO  
jQuery  
MongoDB