John D. Duncan, III

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Work Experience

Massachusetts Institute of Technology: Lincoln Laboratory Summer 2016
Research Intern (Secret Clearance)

- Worked with the Humanitarian Assistance and Disaster Relief Systems (Division 4 Group 44) on the Local Evacuation Alert Verification (LEAV) program for HURREVAC-eXtended (HVX). Wrote an Android application for end users (LEAV) and a javascript module for the Emergency Manager front-end (HVX). Presented my work to the 50+ team group at the end of the summer. The FEMA/DHS sponsor for the project was pleased with the outcome. Agile development cycle. Participated in DHS/FEMA defense workshop. Slides and further details below.

Gettysburg College Computer Science Department Summer 2015
Intern

- Worked with Professor Chuck Kann developing a Gettysburg Monuments mobile app and website.

Lakewood Country Club Summer 2014
Outdoor Services

- Maintained driving range, ensured operation of cards, and cleaned member clubs & bags.

SysArc Summer 2012
Intern/Maintenance Technician

- Helped troubleshooot technology issues with client user accounts & maintained servers.

Domino's Pizza 2009-2013
Insider (Part-Time)

- Worked part-time while in High School training new hires, preparing orders, taking phone orders, and operating cash register. Team Member of the Period PD13 12

Education

B.S. in Computer Science Honors (3.60) and Philosophy Honors (3.73) May 2017
Gettysburg College, Gettysburg, PA
Dean's Honors List Fall 2015/2016, Spring 2017
Dean's Commendation List Fall 2013

Computer Science

Outstanding Computer Science Student Class of 2017
Capstone Adviser: Dr. Rod Tosten
Capstone Title: Adam's Wellness Family Connection Website

- Presented and/or planned seven colloquia for the department (three showing freshmen tips and tricks to succeed as a Computer Science major, two detailing my summer work, one planning/moderating a programming competition, and one detailing the finished product of my group Capstone project)
- Represented the Computer Science Department during the Spring 2016 Get Acquainted Day. This involved presenting some of my past work and answering questions from prospective students and their extended families.
- Organized two "Hour of Code" sessions at the College (with the help of my academic adviser, Dr. Todd Neller) for local students in the Adams County area.

Philosophy

Thesis Adviser: Dr. Lisa Portmess
Thesis Title: *Virtual Futures: Virtuality as Political Praxis*
Capstone Adviser: Dr. Daniel DeNicola
Capstone Final Paper Title: *Infinite Horizons: The World to Mind Question*

- Co-moderated a Philosophy Department Socratic Club Seminar about the future of work.

Eisenhower Institute Undergraduate Fellow

Program offers a select group of Gettysburg College students the chance to develop their leadership skills and their knowledge & understanding of public policy

- Researched and wrote the 'New Technologies' section for the group State Department Diplomacy Lab White Paper on Health Care Records in Mixed-Migration settings. We presented our findings to workers from the *Office of Economic Security, International Health and Biodefense Population, Refugees, and Migration*.
  - Physical research for this project included: a trip to the United Nations, meetings with experts in Europe, and a meeting with resettled Syrian refugees in Pennsylvania.
- Co-organized and moderated two panels that detailed current issues in public policy, national security, and refugee rights.
- Gave a presentation to the EINAC (Eisenohwer Institute National Advisory Council; a 25+ member council consisting of the president of the college, the grand-daughter of a past U.S. president, a member of the 9/11 Commission, and other notable alumni/donors) about our EI activities, trips, dinners, and panels that we held during the 2016-2017 school year.

High School

Thomas S. Wootton, Rockville, MD 2009-2013

- Completed Academy of Information Technology (AOIT) Programming (eight semesters) and Networking (two semesters) pathways.
- Participiated in two national networking and cybersecurity competitions:
  - Cyber Foundations Fall 2011 Competition
    - ranked 87 out of 1,217 participants
  - Cyber Foundations Spring 2012 Competition
    - ranked 83 out of 615 participants
- AP Scholar with Honor.
- Graduated with MCPS Certificate of Merit.
- Patriot Ambassador.

Computer Skills

- Adept at procedural & object oriented programming, abstraction, recursion, encapsulation, inheritance, polymorphism, disguising, and design patterns using the Java and C++ programming languages; also experienced in Javascript development (in both enterprise and personal environments).
- Technologies/Languages that I have worked with (experienced in **bold**):
  - **golang** (particularly net/http servers/handlers)
  - **java** (including extensive work with Android SDK)
  - **xul/xpcom**
  - **regex**
  - c/**c++**
  - **web**
    - **html5**, **css3**, **javascript**, **dom**, jira
    - **json**, geojson, gis, rest, ajax
    - ruby, php, perl
    - sql, **flat file databases**
  - sh, rc, awk, sed
  - **git**, hg, svn, cvs
  - gcc, clang, gimp, irc, nntp, xquartz, unix, *bsd (particularly openbsd), macOS, plan9, awk/sed, gnu, linux, cygwin, ffmpeg, unicode-rxvt, mips asm
  - Competent with the setup and maintenance of web servers (apache, lighttpd, nginx, golang net/http) and mail servers (qmail, OpenSMTPD).
- Exposed to Microsoft Visual Basic, Ogre 3d, Blender, LaTeX, Scheme R5RS, and Python. Familiar with Acme, Eclipse, Android Studio, Visual Studio, xCode, and emacs development environments.
- Proficient at setting up a basic home file server in Windows and Unix environments, setting up a multi-router switch, and end-user local area network in Cisco Packet Tracer and with real hardware.
- Competent using UNIX-like systems, the UNIX command line interface, UNIX configuration, and shell scripting.
- Bug Bounties:
  - CNAV email portal: Discovered and disclosed a bug in the Gettysburg Campus Navigation Portal (CNAV) electronic record keeping system, which was responsible for campus email list-servs, course directories, student information, etc. The bug allowed any standard user to delete any other user account from any publicly-displayed group/email list-serv in the system.
  - CNAV image leak: Discovered that user account images for all students/employees/etc. are publicly leaked to the web by the CNAV server. I explained the specifics of this bug in my disclosure of the aforementioned privelege escalation attack, but it remains unpatched. Received a cash award.

Major Projects

- MIT Lincoln Laboratory Internship (web/android; java/javascript/geoJSON/xml)
  - As part of my summer work at MIT's Lincoln Laboratory (Summer '16), I created an android application (LEAV-EM) and a javascript web module for the LEAV and HVX programs, respectively. LEAV-EM alerts users in disaster affected areas (hurricanes/floods/tornadoes) to evacuate from their specific evacuation zone. State Emergency Managers (EMs) have the ability to set the status of the evacuation zones in my HVX module. LEAV-EM then routes users to the shelter that is closest to their current (or home) location and allows the user to directly interact with their state EMs. I designed, programmed, and developed the app individually.
- Wiki/CMS (web; golang/flat-file db)
  - Wrote simple wiki and cms systems in golang. Wiki layout/featureset based off of WikiWikiWeb/Wikipedia, respectively. CMS based off of Greymatter.

- MessageFaces (mozilla add-on; javascript/xul/xpcom)
  - Ported (to SeaMonkey), updated, and added many new features to an old Mozilla Suite extension named MessageFaces (originally created by Jens Banneman). Newer features include: SeaMonkey compatibility, multiple header photo support, gravatar support (w/ caching), fast X-Face decodes to png instead of bmp (borrowed from mnenhy; original X-Face spec here), picon db support (both local and online databases), mailnews column support that visualizes sender faces, TB 3+ address book contact photo support, and monitoring capabilities similar to the unix programs *picons newscheck-faces* and *xfaces*.
- Picons:
  - As part of this project, I created many 48x48 picons for various companies and organizations that are now included in Steve Kinzler's picon database.
- Gettysburg Battlefield Map (web/android):
  - Created a Gettysburg Battlefield companion application using Javascript and OpenLayers 3 to map points and data onto the Gettysburg battlefield. Published to the Google Play Store as "Gettysburg Monuments Map" and featured on the Gettysburg College Homepage. On the web at `http://historicgettysburg.us/`
- PokerSquares (android; java/xml; neural-net):
  - Designed, implemented, and coded an Android application to play the classic solitaire-based card game "Poker Squares" (utilizing a Native Abstract Reinforcement Learning (NARL) Artificial Intelligence player created by my adviser Dr. Todd W. Neller). Available for download from the Google Play Store.
- RedLightRace (android; java/xml; neural-net):
  - Designed, implemented, and coded an Android application called "Red Light Race" published to the Google Play Store and utilizing a neural network approximately player created by Dr. Todd W. Neller and Marcin Malec ('13) of Gettysburg College. Featured on the Gettysburg College Homepage for my work.
- Classic Macintosh Fonts (macOS; .rsrc hacking):
  - I worked on a Classic Macintosh Typeface conversion project where I created data-fork (.dfont) and fontforge (.sfd) versions of every resource-fork typeface that Apple has shipped (including branding) dating back to the XEROX ALTO in 1979. Sources ranged from pre-release Macintosh versions based on the XEROX STAR operating system all the way up to pre-release versions of OS X (rhapsody).
- Platinum OS X Theme (macOS; .car hacking/GIMP):
  - I created a "Platinum" Macintosh OS 9 theme clone for OS X 10.6, 10.10, and 10.11.
- Playing Cards (gif/png; GIMP):
  - Adapted many different public domain playing card sets into one centralized location for ease of use; created custom skat playing card sets in normal and small sizes (with iconography that I created myself).
- Personal Homepage (web; html5/css3/js/php):
  - I suppose my homepage could be considered a major project. All html, css, (and most) js were written by me. I also created a markdown-to-html shell conversion script (using sed and awk) for my blog and a 7-day weather forecast script which parses information from the NWS api & gets the current location w/ HTML5 geolocation.
- LogicalIncrements (web):
  - Between late 2010-2011 I contributed to the monthly Logical Increments guide (what eventually became `http://www.logicalincrements.com/`)
- portfolio

Philosophy

Simplicity is core to my software development, because it leads to;

- fewer bugs,
- better performance,
- lower memory footprint,
- better maintainability,
- higher scalability,
- longer software lifetime,
- prompt delivery;

...all of which lead to a better quality finished product.
Taken from Anselm Garbe

Governance

Gettysburg Association for Computing Machinery (ACM) chapter

- Vice President 2016-2017
- Secretary 2015-2016
- Attended weekly senate meetings as a student representative 2015-2017

Gettysburg College Independents

- Treasurer 2016-2017
- Organized (wrote questions, planned events, moderated) three political debates between the College Democrats and College Republicans.

Hobbies

- computer programming since 2009
- design (user interface, software, cyberpunk)
- philosophy (of software, knowledge, aesthetics, technology)
- music (singing, listening to all genres & varieties, playing guitar, bass guitar, and trumpet)
- programming & open source
- history (technology/web-related, ancient)
- biotechnology, sustainable ecology, & biohacking

I devote much of my free time to developing and exploring software and software technologies. I am passionate about trying to port as much free and open-source software to macOS as possible.

I am a hobbyist philosopher, UNIX hacker, and political, economic, and media theorist.

I'm a free and open-source software enthusiasist. My website is full of online applications, source code and articles that can be used to examine my style.

When it comes to software and design, I am passionate about simplicity, beauty, and purity. I have done some 9front development, and highly recommend Plan 9 from Bell Labs for hobbyist OS developers.

My design aesthetic is highly influenced by the 80's and 90's computer art movements. When designing, I attempt to blend the best of color-constrained bitmap graphics (dithered/small color palettes), florals, neons, black & white, and "retro" patterns (found on old tour busses, operating systems, programs) with modern platforms and features.

Languages

English	native
French	proficient (written and spoken)
Spanish	elementary (101 and 102)

Extracurriculars

Publications/Articles/Activism/Performances/Competition information here:
`http://cs.gettysburg.edu/~duncjo01/assets/about.html`

References

Professional references available upon request.