

John D. Duncan, III

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Work Experience

Massachusetts Institute of Technology: Lincoln Laboratory Summer 2016

Researcher/Intern

- Worked with the Humanitarian Assistance and Disaster Relief Systems 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). Slides and further details below.

Gettysburg College Computer Science Department Summer 2015

Intern

- Worked with Professor Chuck Kann on the Gettysburg Monuments Map website and mobile app.

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 troubleshoot maintenance issues with client user accounts & servers.

Domino's Pizza 2009-2013

Insider

- Trained new hires, prepared orders, answered phones, operated cash register. Worked part-time while in High School.

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

Capstone Adviser: Dr. Rod Tosten

Capstone Title: Adam's Wellness Family Connection Website

Outstanding Computer Science Student

- 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.
- Co-organized and moderated two panels that detailed current issues in public policy, national security, and refugee rights.

High School

Thomas S. Wootton, Rockville, MD

2009-2013

- Completed Academy of Information Technology (AOIT) Programming (eight semesters) and Networking (two semesters) pathways.
- Participated in two national networking and cybersecurity competitions
 - Cyber Foundations Fall 2011 Competition (ranking 87 out of 1,217 participants)
 - Cyber Foundations Spring 2012 Competition (ranking 83 out of 615 participants and a class ranking of 2nd out of 16).
- Graduated with MCPS Certificate of Merit.
- Patriot Ambassador.

Middle School

Robert Frost Middle School, Rockville, MD
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2006-2009

Elementary School

Maryvale Elementary School, Rockville, MD
French Immersion schooling

1999-2005

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).

- Exposed to Microsoft Visual Basic, Ogre 3d, LaTeX, GNU TeXmacs, 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.
- Here is a concise list of keywords that define technologies that I have worked with (experienced in **bold**):
 - **golang**
 - C/C++
 - **Java**: including extensive work with Android SDK
 - **Web**: HTML5, CSS3, JavaScript, DOM, Web-APIs, JSON, JIRA; golang, ruby, PHP
 - sh, rc, awk, sed, perl
 - SQLite, MySQL, PostgreSQL
 - key/value stores
 - UDP, TCP/IP, Bluetooth, USB, NFC, HTTP(S), REST, WS, QR-/Barcodes
 - **git**, hg, svn, cvs
 - misc: ffmpeg, GCC, Clang, GIMP, XQuartz, UNIX, *BSD (particularly OpenBSD), OS X, Plan9, awk/sed, GNU, Linux, Cygwin, unicode-rxvt, mips asm
 - Competent with the setup and maintenance of web servers (Apache, lighttpd, nginx, golang net/http), databases (MySQL, PostgreSQL), and mail servers (qmail, OpenSMTPD).
- Bug Bounties:
 - CNAV email portal: Found, documented, 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 was a priveledge escalation attack wherein a standard student user could delete any other user 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

- Research @ MIT (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.
- MessageFaces (mozilla add-on; javascript/XUL/XPCOM)
 - I ported (to SeaMonkey), updated, and added many new features to an old Mozilla Suite add-on 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), custom column support so you can visualize what headers senders are using, and (modern; TB 3+) address book contact photo support.
- Picons:

- As part of this project, I created many 48x48 picons for various companies and organizations (the Lincoln Laboratory and Gettysburg logos above were created by me as part of this project) 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 this site itself could be considered a major project. All html, css, (and most) js were written & created 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 (parsing information from NWS api & getting location w/ HTML5 geolocation) for my homepage.
- LogicalIncrements (web):
 - Between late 2010-2011 I contributed to the monthly Logical Increments guide (what eventually became <http://www.logicalincrements.com/>)
- bitmap art 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 & 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 enthusiast. 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/Competitions information here

References

Professional references available upon request.

Heroes

Rob Pike (rob), Renée French, Susan Kare, Dennis Ritchie (dmr), Brian Kernighan (bwk), Ken Thompson (ken), Jamie Zawinski (jwz), Doug McIlroy (doug), Mark Fisher, Maciej Cegłowski, Russ Cox (rsc), Frank Zappa, Oscar Wilde, Richard Feynman, Stanley Kubrick, William Gibson, Phillip K. Dick, Sun Ra, Friedrich Nietzsche, Marshall McLuhan, Timothy Leary, Terrence McKenna, Bob Dobbs (Neveritt), Gilles Deleuze, Conor Oberst, Adam Curtis, Theodore Sturgeon, David Tibet, Jaron Lanier, John Perry Barlow, Albert Camus, Richard Stallman, Brewster Kahle, Aaron Swartz, Werner Herzog, Dr. Robert Bussard, Diogenes of Sinope, Robert Johnson, Uriel Mangado Pereira, Jean-Luc Godard, Kateryna Yushchenko, Grace Hopper, Isaac Asimov, Hunter S. Thompson, Vesna Rožič, Sergey Prokudin-Gorsky, Grigori Perelman, Vasili Arkhipov, Stanislav Petrov, Erik Satie, Yasujiro Ozu, Thomas Cole, Claude Monet, Gian Lorenzo Bernini, Franz Kafka, George Orwell, Smedley Butler, John McCarthy, Jean-Paul Sartre, Norman Borlaug, David Foster Wallace, Mark Lombardi, Konstantin Stanislavsky, Audrey Hepburn, Ennio Morricone, Leo Tolstoy, Fyodor Dostoevsky, Sir Charles Antony Richard Hoare, Edgar Allan Poe, Ernest Hemingway, Allen Ginsberg, Levni Yilmaz, Tim Berners-Lee, Donald Knuth, Noam Chomsky, Brian Eno, Richard Linklater, Erik Naggum, James Joyce, F. Scott Fitzgerald, Nick Koenig, Neil Postman, Johann Wolfgang von Goethe, Thomas Ligotti, J.G. Ballard, J. C. R. Licklider, Kodwo Eshun, D. J. Bernstein, Jean Baudrillard, Hayao Miyazaki