

# J. ELLIOT MILLER

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## HEADLINE

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Bucknell 2019 Computer Science graduate seeking... stuff.

## HEADLINE

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Elliot: International Man of Technology

## BIO

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A *cum laude* computer science graduate of Bucknell University, has been involved with the launch and operations of several small businesses. Co-authored a paper on the gamification of electronics education and is currently working on a second paper on  $\epsilon$ -Differential Privacy protections against adversarial knowledge assumptions; exploring how to exploit the rich world of late '80s video games.

## CAREER GOALS

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Concrete - "To explore the the ways AI can improve educational access and further engagement among underserved communities using my unique combination of educational theory, psychology, and computer science skillset."

## ELEVATOR PITCH

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Elliot combines a broad array of skills and experiences from across disciplines, collar colors, and industries to be a leader who can understand and communicate with people from any position or background, and a worker who can fill almost any professional role and occupy any company space.

## PROJECTS

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### Categorical Logic Solver 2017

*Program for determining the validity of categorical syllogisms according to Aristotle and Boole*

- Written in C
- Explores the close relationship of logic as a philosophical discipline with rudimentary gate functions
- Converts logic problem space to binary dimensions solved with nested looping algorithm

### Super Chess 2009

*Game platform for parsing strategic thinking from rule learning*

- Written in Visual Basic and AutoCAD
- A multivariate chess-like board game developed to explore the divorce of strategy from experience
- Uses plethora of user and randomly chosen game rule variables to build continually unique game play
- Coded in Visual Basic using AutoCAD scripting and modelling as *ad hoc* graphics engine
- Future work will rewrite game for a new platform

### **World of Hellos** 2019 & ongoing

*Exploration of common and esoteric languages*

- Written in Python, Python 3, Ruby, Java, C, C++, Fortran, Fortran90, R, Lisp, JavaScript, & C#
- Uses file management, recipe parsing, and command line calls to compile and run Hello World in any given language
- Accepts output of programs it runs to confirm proper execution

### **Project Management Backend** 2019 & ongoing

*Versatile task management backend*

- Written in C++
- Uses C-language pointers to structure task dependency and link ancillary information to appropriate parents
- Explores integration of common database tools with linked list programmatic representation

### **Math Generator** 2019

*Mathematics practice problem generator*

- Written in C++
- Uses basic computer arithmetic to generate problems and solutions as a teacher's aide
- Future work will implement a learning model of Advanced Exposure to embed simple tasks in a context of an advanced problem

### **j-elliott.github.io** 2019

*Personal Website*

- Written in HTML and CSS
- Showcases projects and Curriculum Vitea information as well as personal philosophy
- Includes a sexy calendar

### **Curriculum Vitea** 2017 & ongoing

*This resumé that you're reading right now!*

- Written in L<sup>A</sup>T<sub>E</sub>X
- Uses custom .cls file to streamline parsing of broad CV into job-specific resumé

### **The Borden House** 2019 & ongoing

*Restoration of a local architectural icon*

- Consulting contractor in the restoration and refurbishment of a nineteenth century Victorian château
- Oversees electrical and plumbing systems maintenance and development
- Assists in steampunk aesthetic design realization
- Drafted whole house floor plans in AutoCAD along with grounds layout

### **VR Dragon Riding Simulator** 2019

*Phone-based virtual reality dragon riding*

- Programmed in C# and Unity
- Uses Google cardboard with motion controls to navigate environment in three dimensions
- Implements button input to trigger custom attack animations on stock sprites

### **Overwatch Gesture** 2019

*Leap motion gesture control for Overwatch*

- Programmed in Java
- Intuitively maps Leap Motion-defined hand gestures to game inputs

### **Circuit Theory Game 2018**

*Developed game to intuitively teach circuit theory*

- Programmed in C#, Unity, Bash, and SPICE
- Eschews numbers and text in favor of immediate visual feedback of circuit activity
- Represents visual circuit graphs as connection matrices
- Converts matrix representation to text file for input to SPICE
- Parses SPICE output into matrix and visual representation using the Edmunds-Karp algorithm

### **Gettysburg Soccer Academy 2014**

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### **Ethical H2O 2016**

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### **Wind Turbine Construction 2017**

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## **EDUCATION**

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### **Bucknell University** June 2016 - May 2019

Bachelor of Arts, Computer Science *GPA: 3.55*

College of Arts and Sciences, Minor in Philosophy

- Bucknell Student Government: Class of 2019 Senator; Advocacy Committee Member; Dining Committee Member; Student Advisory Group Member; Greek Relations Committee Member

Class Tribute Bucknell B

Commemoration Speaker Madeleine Albright

'Ray Response Training

'Ray Resilience

- GSA: Member
- C.A.L.V.I.N. & H.O.B.B.E.S.: Member; Student Driver
- Dragon: Member; Dungeon Master
- ACE

Fall Fest 2018

2017 Escape Room Event: Designed Technology Themed Room

Statistical Literacy for the 21st Century (A-); Psychology of Attraction and Relationships (A-); Caribbean Literature (A); Software Engineering and Design (A-); Intro Latin (B); Calculus III (C+); Computer Organization and Programming (B+); Life, Computers, and Everything (A); Discrete Structures (B+); Logic (A); Computer Science Design Project (B+); Operating System Design (B+); Algorithms (B+); Philosophy of Peace and Nonviolence (A); Cognitive Science (AU); Human-Computer Interaction (A-); Symbolic Logic (A); Philosophy of Society and Politics (B+); Consciousness, Self and Mind (A); Wireless System Design (AU).

### **Harrisburg Area Community College** June 2014 - May 2017

Associate of Arts, Mathematics and Computer Science *GPA: 3.96*

- HACC Student Government Association: Legislative Chair; Senator; Ethics Committee Chair

- Phi Beta Lambda: President
- Phi Theta Kappa: Member

Modern Culture and the Arts (A); Intro to Statistics (A); English Composition (A); Trigonometry (A); Principles of Accounting I (A); Pre-Calculus (A); General Psychology (A); Principles of Accounting II (A); Effective Speaking (A); Applied Calculus for Business (A); Principles of Marketing (A); General Biology I (A); Java Programming (A); Calculus I (A); Introduction to Sociology (A); Intro to Computer Systems (A); Computer Science I (A); Object Oriented Programming (B); Calculus II (A); Beginning Self-Defence (A); General Inorganic Chemistry I (A); Computer Science II (A); Discrete Mathematics (A); Linear Algebra (A).

**National Center for Construction Education and Research** May 2013 - April 2014

Certificates in HVAC/R, Safety, and other construction fields

Reference #: 11142092

Core Curricula; Basic Safety; Intro to Construction Math; Intro to Hand Tools; Intro to Power Tools; Intro to Construction Drawings; Basic Communication Skills; Basic Employability Skills; Intro to Material Handling; Intro to HVAC; Trade Mathematics; Copper and Plastic Piping Practices; Soldering and Brazing; Ferrous Metal Piping Practices; Basic Electricity; Intro to Cooling; Intro to Heating; Air Distribution Systems; Commercial Airside Systems; Chimneys, Vents, and Flues; Intro to Hydronic Systems; Air Quality Equipment; Leak Detection, Evacuation, Recovery, and Charging; Alternating Current; Basic Electronics; Intro to Control Circuit Troubleshooting; Troubleshooting Gas Heating; Troubleshooting Cooling; Heat Pumps; Basic Installation and Maintenance Practices; Sheet Metal duct Systems; Fiberglass and Flexible Duct Systems; Intro to Photovoltaics; Site Assessment; System Design; System Installation and Inspection; Maintenance and Troubleshooting; Your Role in the Green Environment; 10 Hour Construction Site Safety Orientation; HVAC Level One; Solar Photovoltaics System Installer; Solar Photovoltaic; HVAC Level Two.

**Ferris State University** August 2013

Geothermal for Home Certification

**Ohio University** June 2011 - August 2011

Course Work *GPA: 4*

College Algebra (A); Writing and Reading: Gender (A).

**Pennsylvania Highlands Community College** January 2009 - December 2009

Certificate of Office Technology *GPA: 4*

Microsoft Office Suite

Microsoft Excel (A); Microsoft Word (A); Microsoft ACCESS (A); Microsoft PowerPoint (A); Theory of Computing (A)

**Pennsylvania Department of Education** Various

–Needs work. Are those two really the same department? Also, add grades to ged and detail to drafting.–

GED; Drafting stuff

## RELEVANT EXPERIENCE

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**Nooch's Pub and Grill** November 2019 - Present

*A Stinking Cook*

- Who the fuck cares?

**Private Family** October 2019 - Present

*Fourth Grade Math and Computer Science Tutor*

- Provides intensive, one-on-one tutoring in math and computer science
- Utilizes Unity to create lesson plans and curricula tailored to student's needs
- Blends foundational math practice with the introduction of mid and high level concepts to actively engage the children's minds and activate an interest-based approach to drilling and repetition
- Dungeon Master

**Bucknell University** June 2018 - August 2019

*Undergraduate Research*

- Employed SciKitLearn in Python environment to construct machine learning classifiers used in analyzing effectiveness of  $\epsilon$ -Differential Privacy data protections
- Engineered custom Python/NumPy application to extract and present experiment results across seven variables
- Presented research at Susquehanna Valley Summer Research Symposium
- Ran artificial intelligence attacks using university Linux cluster against  $\epsilon$ -Differentially Private data

**Marissa Deihl, SP** September 2018 - May 2019

*Software Developer*

- Primarily responsible for identifying project goals and realizing those goals in code
- Collaborated on team using agile and scrum methodologies to build Unity environment educational application
- Managed feedback in data driven iterative design and testing process, iterating project three times in seven months

**The Bayeux Group** November 2014 - September 2017

*Owner/Manager*

- Founded company to provide business services to new entrepreneurs
- Managed company while overseeing launch of two companies and management of over ten others
- Directed bookkeeping, scheduling, customer and supply chain management, traditional and e-marketing, cost control sales strategic planning, product development, risk management, and software and data analytics on behalf of clients
- Using Gimp, Facebook, and Google and Adobe Suites, created marketing campaigns to promote products and services in multiple industries
- Developed and implemented business reporting process to monitor project progress and delivery status
- Hired, supervised, and trained new employees for multidisciplinary teams

**Dan Kerstetter, Millwork** November 2017 - May 2019

*Assistant Woodworker*

- Worked with master woodworker to build and restore custom cabinetry and furniture
- Used and maintained powered machinery in accordance with OSHA best practices
- Provided business and technology support to back office operations

**VSFS** September 2018 - December 2018

*Software Developer*

- Worked on software development team to produce gamification simulation of VA hospital operations structure
- Collaborated exclusively through video conference technology in scrum structure
- Developed custom artificial intelligence solution for product using Unity tools

**Appalachian Brewing Company** April 2014 - August 2017

*Assistant to the Kitchen Manager/Head Dessert Chef*

- Managed and prepared pre-product materials to line cooks
- Held position of leadership and teamwork on line during high-output, mission critical periods demonstrating ability to work well under pressure
- Occupied maintenance and information technology oriented roles to restore production quickly and efficiently
- Scheduled employee shifts
- Ordered and received supply shipments from vendors
- Organized and stocked supplies to improve efficiency
- Cleaned and maintained kitchen to professional standards
- Developed and tested new recipes and designed dessert specials
- Trained new employees in line and prep roles, policies, and best practices

**Ethical H2O** December 2015 - August 2017

*Senior Technician*

- Managed company finances and bookkeeping using QuickBooks, Excel, Google Suite, and GnuCash
- Conducted sales calls and services to current and potential customers
- Serviced and installed broad range of water treatment and plumbing equipment and systems
- Performed scientific laboratory testing of samples for indicators of human health threats
- Wrote policy, hired and handled professional service providers, and maintained company records
- Hired and trained service technicians and administrative staff

**Wilson Leather** November 2014 - January 2015

*Sales Associate*

- Engaged with customers to determine needs and assist in finding product
- Handled credit, cash and check transactions in courteous and efficient manner
- Received, stocked, and arranged product according to specification

**SCIC** January 2011 - March 2014

*Electrician's Assistant, Environmental Technician, Dock Hand*

- Trained by master electrician with over 30 years experience
- Involved in team pull of high amperage, high voltage new electrical service
- Collaborated on complete rewire of fitness facility including rebuild of 5000+ sq. ft. lighting provision
- Engaged in troubleshooting and maintaining institutional and industrial systems and equipment
- Electrical service and control installation
- Operated front-end loader
- Assisted in rigging and lifting operations
- Removed and sorted institutional waste
- Received security clearance for restricted areas
- Operated pallet jacks loading and unloading shipments of supplies
- Stocked and maintained line food service during high output operation times
- Assisted with testing of new baked goods and experimented with new recipes

**Eisenhower Inn and Conference Center ...**

*Bellman*

- No one cares

## **Round Top Campground ...**

*Cashier*

- No one cares

## **TECHNICAL STRENGTHS**

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<b>Computer Languages</b>	C/C++, Java, Python, Visual Basic, C#
<b>Software &amp; Tools</b>	Unity, LaTeX, Git, Gimp, Microsoft Office Suit, AutoCAD, Quickbooks, SPICE

## **VOLUNTEER EXPERIENCE**

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### **Lucky Orphans Horse Rescue 2019**

- Haven't started yet

### **Rail Trail 2019**

- Haven't started yet

### **HOPE Program Canine Rehabilitation 2013**

*Dog Handler*

- Worked with professional dog trainer to train, care for, and rehabilitate unadoptable dogs, preparing them to be placed in permanent homes

### **Spirit of Gettysburg 5k Charitable Footrace 2014, 2015**

*Volunteer Leader, Traffic Control, Race Results*

- Rode motorcycle to lead wheelchair section of race through course; entered unchecked traffic, preventing collision with racers
- Rode bicycle to lead children's race through course
- Directed vehicular and pedestrian traffic during pre-race period
- Received, ordered, and confirmed race results in real time to be used for awards and listings.

### **Adams County Rescue Mission 2014**

*Recycling Sorter*

- Helped sort and prepare recycling materials.

### **HACC Environmental Club 2015**

*River Cleanup Crew*

- Traveled down local waterway removing trash and debris.

### **Sinai Hospital, ER7 1999**

*Illegal Child Labor*

- Copied, filed, shredded and recorded hospital documents under the direction of staff; ran errands and delivered messages throughout hospital

## **ASSOCIATIONS & PROJECTS**

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**Association for Computing Machinery**

**Project Management Institute**

## **ACADEMIC ACHIEVEMENTS**

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Bucknell Community College Scholars Program Scholarship

Graduated *cum laude* from Bucknell University

**Dean's List:** Spring 2019; Fall 2016; Spring 2016; Fall 2015; Academic Year 2015

Outstanding Freshman Math/Computer Science Student

Outstanding Sophomore Math/Computer Science Student

2016 Bucknell Community College Scholars Program

SGA Senator of the Semester; Fall 2015

First in Who's Who; Phi Beta Lambda 2016(?) Conference

Second in Strategic Analysis and Decision Making; Phi Beta Lambda 2016(?) Conference

Third in Project Management; Phi Beta Lambda 2016(?) Conference

**Benchmark of Excellence:** Electrical; Heat Pump; Certified Carbon Monoxide Inspector; Combustion Analysis; HVACR Electrical Plumbing; Basic Refrigeration and Charging Procedures; System Diagnostic and Troubleshooting Procedures

## LICENSES AND CERTIFICATIONS

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EPA Universal Refrigerant

OSHA 10-hour

## PUBLICATIONS AND PRESENTATIONS

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Susquehanna Valley Summer Research Symposium Poster

(Circuit Game)

(DP Experiment)

## INTERESTS AND ATHLETICS

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Ballroom Dance; Piano; Violin; Guitar; Architecture; Horticulture; Chemistry; Cybernetics; Electronics; Video Games; Legos; Running; Obstacle Courses; Climbing; Combat Sports; Rappelling; One Punch Workout; Cycling