J. ELLIOT MILLER

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PROJECTS

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 parent structures
- 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-elliot.github.io 2019
Personal Website

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

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

EDUCATION

Bucknell University 2016 - 2019
Bachelor of Arts, Computer Science *GPA: 3.55 cum laude*
College of Arts and Sciences, Minor in Philosophy

· Bucknell Student Government: Class of 2019 Senator
· Dragon: Member; Dungeon Master

Statistical Literacy for the 21st Century; Software Engineering and Design; Calculus III; Computer Organization and Programming; Life, Computers, and Everything; Discrete Structures; Computer Science Design Project; Operating System Design; Algorithms; Human-Computer Interaction; Symbolic Logic.

Harrisburg Area Community College 2014 - 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

Intro to Statistics; Trigonometry; Pre-Calculus; Java Programming; Calculus I; Intro to Computer Systems; Computer Science I; Object Oriented Programming; Calculus II; Computer Science II; Discrete Mathematics; Linear Algebra.

RELEVANT EXPERIENCE

Private Family 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

Bucknell University 2018 - 2019
Undergraduate Research

- Employed SciKitLearn in Python environment to construct machine learning classifiers used in analyzing effectiveness of ϵ-Differential Privacy data protections
- Engineered Python/NumPy application to extract and present experiment results across seven variables
- Ran artificial intelligence attacks using university Linux cluster against ϵ-Differentially Private data

The Bayeux Group 2014 - 2017
Owner/Manager

- Founded company to provide business services to new entrepreneurs
- Used 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

TECHNICAL STRENGTHS

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

VOLUNTEER EXPERIENCE

Spirit of Gettysburg 5k Charitable Footrace 2015, 2014
Route Leader, Traffic Control, Race Results

HACC Environmental Club 2015
River Cleanup Crew

Adams County Rescue Mission 2014
Recycling Sorter

ASSOCIATIONS & PROJECTS

Association for Computing Machinery

Project Management Institute

ACADEMIC ACHIEVEMENTS

Bucknell Community College Scholars Program Scholarship

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

INTERESTS AND ATHLETICS

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