

# COLE ELLIS



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**Citizenship:** U.S. Natural-Born Citizen

**Security Clearance:** Secret

**Federal Associations:** Military (U.S. Navy)

*Highly motivated Sophomore at Vanderbilt University actively pursuing a bachelor's degree in Computer Science and Chinese Language. Equipped with a diverse skillset in computer science, with high fluency in C++, Python, and Java, and highly skilled at problem solving. Top-of-Class Midshipman in Vanderbilt Naval ROTC battalion demonstrating excellence in academics, physical fitness, and leadership. Invested in several extracurricular activities including Vanderbilt's Honor Council that demonstrate my leadership and service to the community. Interested in Cyberwarfare Engineering, Artificial Intelligence Research, and Full-Stack Development. Seeking to apply my knowledge and skillset to an internship at the federal level.*

## EDUCATION

SCHOOL OF ENGINEERING, VANDERBILT UNIVERSITY, NASHVILLE, TN

*"14<sup>th</sup> in Best Colleges and Universities" – U.S. News and World Report*

**(SEEKING) B.S. COMPUTER SCIENCE, CHINESE LANGUAGE MINOR**

- Overall GPA: 3.13 | Major GPA: 3.65
- Transferred 32 credit hours from high school to Vanderbilt
- Member of Vanderbilt's Naval ROTC Program, ranked as a 3<sup>rd</sup>-Class Midshipman
- *Notable Coursework:* Program Design & Data Structures, Discrete Structures & Algorithms, Digital Systems & Circuits, Intermediate Software Design, Linear Algebra & Differential Equations
- *Activities and Societies:* Vanderbilt Naval ROTC, Vanderbilt Undergraduate Honor Council, Vanderbilt Ultimate Frisbee ("Armada"), VandyHacks (largest hack-a-thon organization on-campus), VandSWE (Software Engineering Internship Preparation Society), V:POG (Game Development Organization)

SUNCOAST COMMUNITY HIGH SCHOOL, RIVIERA BEACH, FL

*"15<sup>th</sup> Most Challenging High School in the U.S." – Washington Post*

**MATH, SCIENCE, ENGINEERING & INTERNATIONAL BACCALAUREATE PROGRAMS**

- GPA: 3.97 | HPA: 5.21 | Ranked #15 out of 394
- SAT Score: 1510/1600 | 790/800 on Math | 720/800 on Reading & Writing | 19/24 Essay
- SAT Subject Tests: Mathematics Level 2 – 800/800
- *AP Courses* – AP Physics 1, AP Physics 2, AP Physics C: Mechanics, AP Physics C: Electricity and Magnetism, AP Calculus AB, AP Calculus BC, AP English Language and Composition, AP English Literature and Composition, AP Statistics, AP U.S. Government and Politics, AP Spanish Language and Culture. Passed all AP Exams.
- *IB Courses* – IB Calculus Standard Level [7], IB Chemistry Higher Level [7], IB Physics Higher Level [7], IB Spanish Standard Level [7], IB English Higher Level [5], IB History Higher Level [5]. Scores out of 7.
- *Dual Enrollment Courses* – Microcomputer Applications, Introduction to Programming Logic, Introduction to C Programming, Anatomy & Physiology I, Anatomy & Physiology I Lab, Calculus II, Calculus II, Differential Equations, Linear Algebra. Graded A in all coursework.

# WORK EXPERIENCE

## INDEPENDENT CONTRACTING

*December 2021 – Present*

### INDEPENDENT ESCAPE ROOM CONTRACTING

- I currently work as an independent contractor for building escape rooms for local escape room companies in my hometown. I am contracted to design and implement all functionality in the escape room, including visual effects, props and puzzle logic, wiring, sound, and mechanics.
- The hardest part about this position was first learning the technologies required to create escape rooms from scratch. A persistent challenge that I face in this business is marketing and advertising; the business is a competitive environment where I must fight against larger entities to secure contracts with escape room businesses.

## UNITED STATES NAVY

*May 2021 – June 2021*

### MIDSHIPMAN THIRD CLASS SUMMER CRUISE

- On the Midshipman 3/C Summer Cruise, I spent a month working with the main unrestricted lines of the Navy: the surface fleet, the submarine force, and the aviation community. I worked at Naval Base San Diego, Naval Base Point Loma, and Naval Air Station North Island on mini deployments to various vessels. I served as a Platoon Sergeant of a company of 55 Midshipmen in a hands-on leadership environment that challenged me to lead in unfamiliar territory during high-stress evolutions.
- Notable times of challenging included learning how each compartment of different Naval warships functions and cooperates with other compartments. The most challenging compartment to learn was shiphhandling but is a skill I have improved at significantly since I began formal shiphhandling education through Naval ROTC.

## INDEPENDENT CONTRACTING

*August 2018 – December 2020*

### ONE-ON-ONE STEM TUTOR

- Throughout high school, I worked as a local STEM tutor for middle and high school students across my county. I advertised my tutoring services to middle and high schools in my area to find students that were behind the curriculum and needed extra support to catch up to the current standards.
- Notable times of challenging in this position include students that were far behind the curriculum and needed to re-learn everything before moving on to the more advanced material. This became challenging because the core curriculum never stopped moving, so I was tasked with implementing a learning plan that caught the student up to a still-moving curriculum and provide them the confidence they need to solve problems independently.

## BEYOND THE FIVE

*August 2019 – August 2020*

### ADVANCED PLACEMENT COURSE INSTRUCTOR

- Beyond the Five is an online platform to provide free educational resources to students seeking to independently study courses in any area. Beyond the Five provides full courses at the collegiate level, including AP/IB courses, foreign language, and university-level content. For Beyond the Five, I instructed both AP Statistics and Differential Equations.
- The most challenging part of this position was creating all my own materials, including notes, assignments, quizzes, and exams. I found a new appreciation for the work that professors put into the subjects they teach and have given me a new level of respect for professors that many students may not have nor realize.

## MATHNASIUM

*April 2019 – June 2020*

### **MATHEMATICS INSTRUCTOR**

- At Mathnasium, I worked as a mathematics instructor to guide students through an individualized curriculum that was tailored to their mathematical abilities. Students of all mathematical backgrounds came to Mathnasium: kindergarten students to calculus students, and students far behind the curriculum standard to students far ahead of their standards.
- Notable times of challenging include times where the center was full of students, and I oversaw up to four students at one time. This became especially difficult when each student was at a different level of understanding and required certain amounts of attention due to lack of understanding.

## BLAZE PIZZA, INC.

*April 2018 – March 2019*

### **PIZZA MAKER**

- At Blaze Pizza, I served as a line cook and served to-order, build-your-own pizzas for customers. I served on all stations of the line, including order-taking, dough-pressing, pizza-building, pizza-smithing, cashier, and expeditor. Most shifts, I worked on a team of eight other individuals to ensure lightning-fast service at 100% accuracy every order.
- Notable times of challenging include Pi Day, where pizzas were advertised at \$3.14. The entire staff was scheduled for this day and were challenged with upholding fast service times for over a thousand customers in one night.

# MILITARY SERVICE

## MIDSHIPMAN THIRD CLASS, NAVAL RESERVE

*Start-to-End Date: August 2020 – May 2029*

**Supervisor Contact: Captain Brian C. Erickson, Commanding Officer, (615) 322-2671.**

Station Address: 1114 19<sup>th</sup> Avenue South, Nashville, TN 37212

Salary: Null, \$300/month stipend

No Veteran's Preference

Duties and Responsibilities:

- Served in leadership roles in both operations and logistics departments.
- Formerly responsible for maintaining and upholding the unit's rigorous academic standards and implementing systems to aid students that aren't meeting standards as Academics Officer (ACAD).
- Currently responsible for managing nine midshipmen in a platoon as a Platoon Commander.
- Participate in both physical and academic training based around Naval Curriculum.

# EXTRACURRICULAR ACTIVITIES AND VOLUNTEER SERVICE

## APPLE, INC.

*August 2020 - Present*

### **VOLUNTEER BETA SOFTWARE DEVELOPER**

- I currently serve as a Beta Software Developer for Apple's releases of iOS, iPadOS, and MacOS software. I look for bugs in any portion of the software that would prove problematic for the public software release, then work with a team of individuals to determine the best solution to this problem.
- This position challenges me to think critically to find solutions to problems in code that I did not write, debug errors in millions of lines of code, and lead a team of individuals to successfully implement these solutions that result in permanent changes in Apple's software.

## VANDERBILT UNIVERSITY

*February 2022 – Present*

### **UNDERGRADUATE HONOR COUNCIL MEMBER**

- I serve as a member of Vanderbilt's Undergraduate Honor Council, one of the University's core functions that upholds the academic discipline and integrity. As a member of the Honor Council, it is my duty to serve as both an adviser to students that are new to the Honor Council process and discuss the proceedings of the Honor Council process as well as serving as a member on a team of panelists at hearings to accurately determine the parties at fault and the corresponding reprimanding actions.
- The hardest part about serving in this position is determining the most accurate resolution of the case. All the information known is the information inside the case file and information gathered at the hearing; making the best decision based on this information is the backbone of the Honor Council panel and is a very tough task to accomplish. However, working on a team of individuals to discuss the most probable action sequence makes this daunting task manageable.

## VANDERBILT UNIVERSITY

*August 2020 – May 2021*

### **PRESIDENT, MARTHA INGRAM COMMONS NORTH HOUSE**

- I was the elected president of the Martha Ingram Commons North House during the 2020-2021 academic year. I was challenged to lead a dormitory of freshmen, provide opportunities for community bonding and character development, and provide support in times of need.
- I was also challenged with preparing the House to compete in the annual Commons Cup, an annual competition between the ten freshman houses to be the best in five categories: Academics, Athletics, Community Involvement, Service, and Sustainability. North House won all five categories during this year under my lead and won the Commons Cup.

## SUNCOAST COMMUNITY HIGH SCHOOL

*May 2020 – July 2020*

### **LEAD INSTRUCTOR, SUNCOAST JUMPSTART PROGRAM**

- The Suncoast Jumpstart Program is a program designed for incoming freshmen to meet their class and ensure that their mathematical background is strong and ready for the rigor of the program. I, along with a team of 20-30 individuals, train around 150 students to become masters at Algebra 2 for two weeks over the summer. This opportunity provides us a chance to give back to the students that prepared us as incoming freshmen.
- I was challenged with creating all the lecture materials for the program. I wrote a 200-page curriculum companion that covered all the content that was taught during the Program, created nearly 100 pages of "drill" to practice the concepts, and a comprehensive before-and-after assessment to monitor the progress and improvement of the students over the Program.

## PALM BEACH ZOO AND CONSERVATION SOCIETY

*June 2016 – September 2019*

### **VOLUNTEER ANIMAL CONSERVATION INSTRUCTOR**

- At the Palm Beach Zoo, I served over 300 hours as an animal conservation instructor. I gave hourly "animal talks" at various animal exhibits across the Zoo about the animal itself, understanding its endangerment, and methods everyone can make to individually help the conservation effort.
- From this experience, I gained a new lens on public speaking, gave back to my community in teaching them about animal conservation, and assisted the Palm Beach Zoo in accomplishing their mission statement of "Inspiring others to act on behalf of wildlife and the natural world".

# PROJECTS

## ESCAPE ROOM BUILDING

*Languages: Python, Assembly, SQL, HTML/CSS/JS*

### FULL-STACK DEVELOPMENT

- Escape Room Designing is my favorite ongoing project, job, and hobby that I do. After starting my career in completing escape rooms in 2017, I decided that I want to design escape rooms to provide an immersive experience like no other. I received my first contract to design a “Stranger Things” escape room in 2020 and spent three months building, wiring, and coding all the major gameplay of the room, then using circuits and lights to build the visual effects.
- This full-stack job challenges me to connect my knowledge of computer architecture with front-end development, back-end control flow, and a fully integrated control mechanism that allows the game master to control any part of the room. I actively seek new contracts to build more escape rooms and am constantly designing new props and themes.

## MINECRAFT PLUGIN DEVELOPMENT

*Languages: Java*

### OBJECT-ORIENTED PROGRAMMING

- Minecraft Plugin Development is the process of interfering with events that occur in the standard gameplay and hijacking these events to change how the game works. This can also be combined with clever object-oriented programming to create game modes inside vanilla Minecraft, which alter the objective of the game in any way imaginable.
- Minecraft is an extremely object-oriented language that uses a large tree hierarchy of classes to support all interactivity with the game. Coding plugins not only tests my ability to write object-oriented code but interact with and debug currently existing code to ensure proper functionality.

## ARTIFICIALLY INTELLIGENT VIRTUAL ASSISTANT (A.I.V.A.)

*Languages: Python*

### MACHINE LEARNING & ARTIFICIAL INTELLIGENCE

- A.I.V.A. is a virtual assistant AI built to replicate JARVIS from Iron Man. The AI uses a variety of plugin and API mechanisms to extend its functionality beyond the capabilities of a single programming language. It fully understands voice input, can return a voice response, and is proficient at answering “What is...” questions and mathematical computations.
- A.I.V.A. is my largest project to date and has taken nearly two years of semi-consistent work to reach its current stage. Through further development, exploration into artificial intelligence and natural language processing, A.I.V.A. will soon reach the full capabilities of JARVIS.

## WORDLE SOLVER

*Languages: C++*

### GAME THEORY, HUMAN MEMORY REPLICATION

- My Wordle Solver is an artificial intelligence that uses a high-efficiency predictive algorithm to determine the best guess at each sequential event in the game. The predictive algorithm ranks each letter of the alphabet by its most probable position in a word and its likelihood of being inside the word at all, then sorting the database of plausible words by revealed information.
- This AI is a test of game theory and how efficient a computer can solve a problem. The goal is to replicate human thought signal processing to make the smartest decisions while also being reasonably fast at solving the problem.

# HONORS AND AWARDS

UNITED STATES CONGRESS

*February 2019*

## **GOLD MEDAL, THE CONGRESSIONAL AWARD**

- Earned Bronze, Silver, and Gold Medals.
- “America’s Highest Honor for its Youth” – Corporation for National and Community Service
- One of 6100 people in history to ever receive this award.

UNIVERSITY OF CENTRAL FLORIDA

*February 2020*

## **ELEVENTH PLACE, LOCAL PROGRAMMING COMPETITION**

- As my first programming competition, I placed 11<sup>th</sup> in a competition meant for all university students as a high school student.
- C was my language of choice; however, C, C++, Java, and Python were the permitted languages.
- This is one of my most cherished awards as it was my first big accomplishment in the field of computer science.