

Caleb Koch

Academic Résumé

Danville, Va

24541

USA

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Education

- 2013–Present **Advanced High School Diploma (in progress)**, *Galileo Magnet High School*, Danville, Va, *GPA: 4.0*, Class rank: 1/68.
Full IB Diploma candidate, AP Scholar
- 2014–Present **Math 163, 164 (Pre-Calculus); Biology 101 (in progress)**, *Danville Community College*, Danville, Va, *GPA: 4.0*.
Duel-Enrollment through High School
- 2015 **Honors Seminar 100, Philosophy 103 (Introduction to Logic)**, *University of Mississippi*, Oxford, MS, Awarded full scholarship to attend summer session.
- 2014–2015 **Intro to Aerospace Engineering Technology, MEC 195 (in progress)**, *Thomas Nelson Community College*, Course offered online through NASA Space Grant Consortium, available to Virginia Aerospace Science and Technology Scholars.
- 2012–2013 **Advanced High School Diploma (credit towards)**, *Buffalo Gap High School*, Swoope, Va, *GPA: 4.0*.
Attended as freshman until relocating to Danville

Experience

Internship/Educational

- 2015 **Selected Participant/Student**, *University of Mississippi*, Oxford, MS.
Summer College for High School Students
- 2014 **Research Intern**, *National Institute of Aerospace*, Newport News, Va.
Conducted research in Morpheus Labs under mentorship of Dr. James E. Hubbard Jr.
- 2014 **Selected Participant**, *North Carolina State University*, Raleigh, NC.
Engineering Summer Program in Computer Science

Volunteering

- 2014 **Danville Science Center**, Danville, Va, Over 30 hours.
Weekly, designed small science experiments to show children ages 4-10
- 2014 **God's Storehouse**, Danville, Va, Over 20 hours.
Weekly, helped organize and distribute food to impoverished Danville residents.

Employment

- 2012–2013 **Assembler**, *Driver Brothers Greenhouse*, Verona, Va.
- 2012–2013 **Golf Course Assistant**, *Ingleside Golf Resort and Conference Center*, Verona, Va.

Extracurricular Activities

- 2014–2015 **GMHS Programming Team**, *Galileo Magnet High School*, Founder and Captain.
A group of students interested in competitive programming and algorithm development
- Awards
- USA Computing Olympiads Participant (bronze), 2014
 - ACM@UVA High School Programming Contest, placed in top 25 teams
- 2014–2015 **Junior Engineering Technical Society**, *Galileo Magnet High School*, Secretary.
A school-wide society for those interested in STEM related careers, projects, and activities
- 2013–2015 **Beta Club**, *Galileo Magnet High School*, Secretary.
Honor society focused on community service and leadership. Compete annually in the Virginia State Beta Convention where students from around the state represent their schools in various competitions.
- Awards (state beta convention) and Accomplishments
- Virginia State Quiz Bowl 3rd place, Consolation Champions, 2015 (Co-Captain)
 - Virginia State Mathematics Champion, 2015
 - Virginia Scholarship Sweepstakes, 3rd place (Awarded based on total school performance in the state), 2015
 - Virginia State Quiz Bowl Semi-Finalists, 2014 (only non-senior of 4 selected to represent school in state competition)
 - Selected Secretary, 11th grade
- 2011–2015 **Academic Competition for Excellence**, *Buffalo Gap High School and Galileo Magnet High School*, Captain.
Very similar to quiz bowl. Players organized in teams of 4 compete against each other in answering academic questions
- Awards
- 3rd place Virginia State Regionals Competition, 2014
 - 1st place Conference 44 Championships, 2014
 - 2nd place Virginia South Central District, 2014
 - Captain, 11th grade
 - Virginia District Quarter Finalists, 2013
 - 2nd place Conference 44, 2013
 - Starter, 9–11 grade
- 2013–2015 **Chess Club**, *Galileo Magnet High School*, President.
Made of students from grades 9–12 with an interest in chess
- Awards
- Awarded presidency based on performance, 11th grade
 - Undefeated, 2013–2014
- 2012–2015 **Varsity Soccer**, *Buffalo Gap and Galileo Magnet High School*, Starter, defense, midfield.

- 2012–2013 **Student Council Association**, *Buffalo Gap High School*, Freshman Class Representative.
Student government organization; helped orchestrate school-wide events and activities
- 2012 **Varsity Golf**, *Buffalo Gap High School*, 4th seed.
Awards
 - o District Qualifier, 2012

Languages

C++	Proficient	<i>Most comfortable with algorithm development and data manipulation</i>
LaTeX	Proficient	<i>Used to write most research papers</i>
Java	Knowledgeable	<i>Knowledge developed based on AP Computer Science curriculum</i>
HTML/CSS	Knowledgeable	<i>Familiar with basic web design and implementation</i>

Computer skills

Microsoft Office	Word, Excel, Powerpoint, Access
Arduino	Programming, construction, and general use
Computer-Aided Design	Knowledgeable with Google Sketchup and Layout

Papers/Publications/Works in Progress

- 2015 **Designing and Testing an Electromagnetic Braking System**, *Instructables*.
Article published on instructables.com. Can be found at <http://www.instructables.com/id/Designing-and-Testing-an-Electromagnetic-Braking-S/>
Awards
 - o Selected by editors to be featured on website
- 2015 **Reducing Angular Velocity by Means of Electromagnetism**, *Virginia Junior Academy of Science*, Physics.
Paper documenting research completed on electromagnetic braking. Can be found at ResearchGate.
- 2015 **On the Area of a Unique Fractal Over Infinite Iterations**, *ResearchGate*, Dynamical Systems.
A mathematics paper on fractal geometry.
- 2014–2015 **Aberrant Behavior of Class IV Cellular Automata Systems in Game of Life**, *Work in progress*, Theoretical Computer Science.
A major research endeavor identifying and proving regularity within a previously established random systems
- 2014–2015 **Generalized Area of Polygonal Fractals Constructed via Koch's Methodology**, *Work in progress*, Dynamical Systems.
Extends previous research on fractal geometry
- 2014 **Chemistry Made Easy!**, *Google Play*, Application.
An app that serves as a chemistry calculator to help ease the redundancy of formulaic calculations

2014 **The Beginning of a Journey**, *Reflections*, Literature.
Essay selected for publication in school's literary magazine

Hobbies

Rubik's cubing, chess, reading, mountain biking, and tennis.