Caleb Koch

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EDUCATION

Cornell University, College of Arts and Sciences, Ithaca, NY **Expected May 2020**
Bachelor of Arts, Computer Science & Mathematics, GPA: 4.07
Current | Completed Courses: Theory of Computation, Algorithms, Functional Programming, Honors Linear Algebra | Discrete Structures, Probability Models and Inference, Object Oriented Programming and Data Structures, Theoretical Linear Algebra and Calculus, Number Theory, iOS App Development, Introduction to Logic

RELEVANT EXPERIENCE

Mathematics Department, Cornell University, Ithaca, NY, *Course Assistant* **Aug. 2016 – Present**
- Course assistant for Math 1120 (Calculus II)
- Lead weekly homework study sessions and help grade homework assignments

University of Missouri – Columbia, CS REU in Networks, *Student Researcher* **May – July 2017**
- Researched machine learning techniques for computation offloading in edge networks
- Project involved Glassware development, data analysis in R and Python, and network simulations in OMNeTT ++

CU Sail, Cornell University, Ithaca, NY, *Navigation Team Member* **Aug. 2016 – May 2017**
- Project involved designing and constructing an autonomous sailboat
- Implemented algorithms in C to assess directional instability

US Army Corps of Engineers, Alexandria, VA, *Research Intern* **June - Aug. 2016**
- Researched interpolation techniques for mining trajectory data
- Developed software in Java to test interpolation techniques, analyzed results in R

National Institute of Aerospace, Hampton, VA, *Research Intern* **June - July 2014**
- Implemented PelcoD communication protocol on an Arduino platform for an infrared sensor on a UAV
- Fabricated ornithopter tail and wing components and revised lab procedures for ornithopter construction

SPECIALIZED SKILLS

Programming Languages: Java, C++, Swift, HTML, Markdown, R, LaTeX, Python
Tools: Arduino, R Studio, Git, OMNeTT++, Android Studio, Jupyter Notebook

PUBLICATIONS/PROJECTS

Hyperprofile-based Computation Offloading for Mobile Edge Networks (2017), To appear in *IEEE 14th International Conference on Mobile Ad Hoc and Sensor Systems.* arXiv:1707.09422
- Research conducted during REU at University of Missouri – Columbia

JustNews (2017), devpost.com/software/justnews
- Developed a web app to determine political leaning of an article and offer unbiased alternatives
- Implemented a document classifier in R to categorize political leanings of news sources
- Awarded top 10 hack and Honeywell sponsor prize at HackPrinceton

LaTeXt (2017), devpost.com/software/latext-jidg7u
- Developed an SMS platform that renders LaTeX code in text messages for PennApps XV
- Implemented Flask backend to handle code rendering

Identifying and Assessing Interpolation Methods for Mining Trajectory Data (2016), *ResearchGate.* DOI: 10.13140/RG.2.2.33049.01123.
- Presents major findings from research at the US Army Corps of Engineers

A Probabilistic Method for Predicting Behavior in the Game of Life (2015), *ResearchGate.* DOI: 10.13140/RG.2.2.11030.65604
- Developed a probabilistic model to analyze behavior of cellular automaton systems
- Wrote simulations in C++ to test accuracy of model
- Awarded 2016 Intel STS Research Report Award

Chemistry Made Easy! (2014), Google Play. Mobile Application.
- Developed an app to serve as a chemistry calculator

AWARDS

- **Jack Kent Cooke Scholar, 2016:** National merit scholarship to cover cost of college
- **Intel Science Talent Search 2016 Research Report Award:** Awarded for research on cellular automata
- **Virginia Mathematics Champion, National Beta Club, 2015:** Placed 1st in state mathematics competition