Evan M. Cofer

Computational Biology & Computer Science

One Trinity Place #363
San Antonio, TX 78212
✉ *ecofer@trinity.edu*
www.evancofer.com

Education

May 2017 **Bachelor of Science in Computer Science**, *Trinity University*, San Antonio, TX.
Computer Science GPA: 3.93/4.0
Trinity University Mach Research Fellow
Trinity University Trustee's Scholarship

2008–2012 **High School Diploma**, *Keystone School*, San Antonio, TX.

Awards, Honors, and Scholarships

April 2016 **Mach Research Fellowship**, *Trinity University*.

Yearly, each academic department recommends a rising senior for the Mach, which recognizes outstanding undergraduate research achievement. From these nominees, the Faculty Research Committee selects five recipients. I was nominated by the computer science department, and subsequently chosen as a recipient.

April 2016 & December 2015 **No-Boundary Thinking Contest: First Place**, *Trinity University*.

Entrants should propose a computational solution to an interdisciplinary problem. In addition to an essay, submissions should include a presentation at the department colloquium. I competed twice, winning both times. My first submission considered the use of authorship/topic networks for improving gene name disambiguation. For the second entry, I described a means of constructing lightweight ontologies to aid in the exploration of large datasets of leaked documents.

December 2015 – Present **Dean's List**, *Trinity University*.

Achieved a grade point average of 3.65 or higher while taking 15 or more hours.

August 2012 – Present **Trustee's Scholarship**, *Trinity University*.

Scholarship for academic merit.

Research Experience

January 2016 – Present **Hibbs Computational Biology Laboratory**, *Trinity University*.

Ongoing research to quantify the rate at which somatic mutations accumulate in healthy, aging mammals. Developed a deep learning model to distinguish somatic mutations from noise in high volume DNA sequencing data (>13 trillion paired-end reads).
http://www.cs.trinity.edu/ mhibbs/HibbsHome/Research.html

April 2015 – July 2015 **Jiang Computational Game Theory Laboratory**, *Trinity University*.

Modelled the popular vote of battleground states in the 2012 United States presidential election. Predicted outcomes both nationally and state-by-state. Used bootstrapping and non-parametric Monte Carlo methods to counter poll sparsity.
http://www.cs.trinity.edu/ xjiang/

May 2013 – July 2013 **Glawe Engineering Laboratory**, *Trinity University*.

Analyzed the use and accuracy of nutating disc mechanical flow meters for recycling water condensation from air conditioning systems. In addition to research, managed all equipment and developed graphical user interfaces for lab instruments.
https://new.trinity.edu/faculty/diana-glawe

Work Experience

January 2017 – Present **Teaching Assistant**, *Trinity University*.
Worked as a grader, tutor, and teaching assistant for CSCI-1323 Discrete Structures.

Software

2016 **Reddigest**, *https://github.com/evancofer/reddigest-scalafied*.
Collaborated with two other developers to create Reddigest, a web application based around Reddit. Reddigest filters out links on Reddit that a user has already viewed. Initially built with PHP/javascript/Apache HTTP, but rewritten in Scala/Scala.js/Play to improve maintainability, scalability, and overall quality.

2015 **Polling Data Retrieval Program**.
A Java program to fetch and parse XML polling data from the Huffington Post. Retrieved data is processed with MATLAB. Source code available upon request.

Many **Miscellaneous Code and Projects**, *https://github.com/evancofer*.
Source code available upon request.

Relevant Coursework

In Progress (Spring 2017) at Trinity University.
CS Thesis II, Artificial Intelligence, Software Engineering

Completed at Trinity University.
CS Thesis I, Principles of Functional Languages, Theoretical Computer Science, Compilers, Database Systems, UNIX Power Tools, Web Application Development, Advanced Algorithms, Principles of Computer Design, CS Thesis Reading, Data Abstraction, Computational Game Theory & Multi-agent Systems, Discrete Data Structures, Principles of Computer Science I & II, Probability & Statistics for Scientists & Engineers, Differential Equations & Linear Algebra, Calculus I, II, & III, Directed Studies in Computer Science, Competitive Programming, Electronic Circuits & Lab, Physics I & II, Thermodynamics I, Mass and Energy Balance

Proficiencies

Languages and Technologies.
C++, Python, Scala (Akka, Play, Scala.js), TensorFlow, bash, git, Linux, C, Keras/Elephas, SQL, JavaScript, Haskell, HPC (Torque, Slurm), MongoDB, LaTeX, CSS/HTML, MIPS Assembly

Academic and Professional Affiliations

May 2016 – Present **Member, International Society for Computational Biology (ISCB)**.
Scholarly society for researchers in computational biology and bioinformatics.
https://www.iscb.org

August 2015 – Present **Member, Association for Computing Machinery (ACM)**.
Professional society for computer scientists.
https://www.acm.org

Publications

(Alphabetically) Beaulieu-Jones BK, Chaudhary K, Ching T, **Cofer EM**, Eraslan G, Gitter A, Greene CS, Himmelstein DS, Hoffman MM, Huss M, and Way GP. Deep learning, genomics, and precision medicine [in preparation]. *Journal of the Royal Society Interface*.

Cofer EM and Hibbs MA. Mammalian somatic mutations and healthy aging [in preparation].

Cofer EM and Hibbs MA. Improved detection of rare genomic variants through deep learning [in preparation].

Conference Presentations, Posters, and Talks

Cofer EM and Hibbs MA. Accurately measuring the mammalian somatic mutation rate using deep learning [platform talk & poster]. *Conference for Science at the Forefront of Basic and Translational Research*, October 2016. University of Texas at San Antonio. San Antonio, TX.

Cofer EM. Using deep learning to classify mutations [talk]. *Computer Science Colloquium*, September 2016. Trinity University. San Antonio, TX.

Cofer EM, Kennedy RM, and Hibbs MA. Accurately measuring the mammalian somatic mutation rate [poster]. *International Conference on Intelligent Systems for Molecular Biology*, July 2016. Orlando, FL.

Cofer EM and Hibbs MA. Using deep learning to classify mutations [talk]. *Trinity University Summer Undergraduate Research Conference*, July 2016. Trinity University. San Antonio, TX.

Cofer EM* and Witecki I*. Ontology construction: a means of improving data-driven journalism [talk]. *Computer Science Colloquium*, April 2016. Trinity University. San Antonio, TX. (*Equal contribution)

Cofer EM. Gene name disambiguation: a novel approach [talk]. *Computer Science Colloquium*, December 2015. Trinity University. San Antonio, TX.

Cofer EM, Kwessi EA, Nguyen HV, Nishikawa KA, and Jiang AX. Modeling the 2012 presidential election's battleground states [talk]. *Trinity University Summer Undergraduate Research Conference*, July 2015. Trinity University. San Antonio, TX.

Cofer EM*, Ybarra T*, and Glawe DD. Positive displacement meter performance [talk]. *Trinity University Summer Undergraduate Research Conference*, July 2013. Trinity University. San Antonio, TX. (*Equal contribution)