

Abigail K. Julian

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EDUCATION	Emory University PhD Student, Computer Science and Informatics Graduate Research Fellow, National Science Foundation Women in Natural Sciences Fellow, Laney Graduate School Advisor: Lars Ruthotto	Atlanta, GA
	Vanderbilt University B.A., Mathematics (Honors Track), Computer Science, Spanish Magna Cum Laude	Nashville, TN Spring 2019
RESEARCH PROJECTS	Deep Learning for Higher Resolution MRI Images Using deep learning to train an efficient and effective tool for generating accurate and high-resolution human brain images from EPI MRI scans. Leveraging the physical structure of distortion artifacts to generate higher resolution images. Incorporating tools from image registration, optimal transport, and GPU computing.	2020-Present
	Towards Student Mastery in Introductory Computer Science Leveraged recent advances in Deep Knowledge Tracing along with years of student data from Emory's introductory programming course to predict student mastery of basic programming concepts. Developed software to transform a student submission that does not compile into code able to be parsed into a syntax tree in order to calculate the distance from a correct solution.	Summer 2020
	Real-Time Study Feedback for First-Year Medical School Anatomy Advised medical students building a data-gathering Python plugin for the Anki flashcard platform, allowing professors access to real-time study data. Ran a pilot experiment with first-year anatomy students.	Spring 2019
	Computational Sustainability and Place-Based Storytelling Collaborated with a team of undergraduates to develop an artificially intelligent place-based storyteller in Python for sustainability awareness. Created functionality to introduce and provide context for stories found online. Investigated ways of characterizing and measuring relevance between a place and a text.	Summer 2018
	Election Control Algorithmic Complexity Worked on an independent study algorithmic complexity project. Wrote a literature review on election control algorithms research. Proved election control by manipulating votes at a set of districts is NP-Hard.	2017-2018

CONFERENCE PROCEEDINGS	Fisher, D, Markert, E., <u>Roberts, A.</u> , & Varma, K. (2019). “Region Radio: An AI that Finds and Tells Stories about Places”. <i>Proceedings of the 10th International Conference on Computational Creativity</i> (pp. 336-340).
CONFERENCE PRESENTATIONS	Fast and Trainable Susceptibility Artifact Correction for EPI-MRI. <i>SIAM Imaging Science 2022</i> . March 25, 2022. Online. Fast and Trainable Susceptibility Artifact Correction for EPI-MRI. <i>SIAM Mathematics for Data Science 2022</i> . September 28, 2022. San Diego.
POSTERS	A. Rees, M. Naguib, <u>A. Roberts</u> , and B. Pearson. “Using Anki to Provide Real-Time Learning Feedback in First-Year Anatomy.” Presented at <i>AMA ChangeMedEd 2019</i> . September 2019. E. Markert, <u>A. Roberts</u> , K. Varma, and D.H. Fisher. “Region Radio: An Artificially Intelligent Story Teller about Conservationism.” Presented at <i>2018 Doctoral Consortium on Computational Sustainability</i> . September 2018.
TEACHING	Instructor of Record, Introduction to Computer Science II Spring 2020, 2022, 2023 <i>Emory University, CS 171</i> Planned and delivered twice-weekly 75-minute lectures to 40 students. Held office hours to aid students in understanding. Responsible for creating quizzes, assignments, and exams. Transitioned course to a remote environment due to COVID-19 pandemic. Graduate Teaching Assistant, Introduction to Computer Science Fall 2019 <i>Emory University, CS 170</i> Assisted Instructor of Record with questions and debugging in lecture. Held office hours to aid students in understanding. Responsible for grading homework and quizzes. Proctored weekly quizzes. Undergraduate Teaching Assistant, Survey of Calculus Fall 2018, Spring 2019 <i>Vanderbilt University, MATH 1100</i> Instructed weekly recitation sections of 15 students. Presented class material in alternate ways to improve student understanding. Responsible for grading quizzes and exams. Held weekly office hours.
HONORS & AWARDS	Graduate Research Fellow, National Science Foundation 2021-2024 Women in Natural Sciences Fellow, Emory University 2019-2024 Dean’s List, Vanderbilt University 8 Semesters, 2015-2019
ACTIVITIES	Computer Science and Informatics Program Student Ambassador 2019-Present Student Member, Society for Industrial and Applied Mathematics 2020-Present Member, Center for the Integration of Research, Teaching, and Learning 2019-Present Computer Science and Informatics Curriculum Task Force Member Fall 2020
SKILLS	<i>Programming Languages</i> Python (including NumPy and PyTorch), C++, C#, C, SQL, Java, MATLAB

Foreign Languages
Fluent in Spanish, Elementary French

Training and Certificates
“Advancing Learning Through Evidence-Based Teaching” certificate with distinction
(Center for the Integration of Research, Teaching, and Learning, Spring 2020)