

Kevin Michael McCoy

Website: kmccoy3.github.io
Email: kmccoy8@gatech.edu
LinkedIn: linkedin.com/in/kmccoy3
GitHub: github.com/kmccoy3
Phone Number: (203) 939 - 2080

RESEARCH INTERESTS

I am passionate about using statistics and computer science principles to solve pressing biomedical problems. My particular research interests include biostatistics, machine learning, data science, computational statistics, and network data.

EDUCATION

Georgia Institute of Technology	Atlanta, GA
B.S. in Biomedical Engineering, GPA: 4.00/4.00	2018-2022

RESEARCH EXPERIENCE

Laboratory for Pathology Dynamics — Cassie S. Mitchell, PhD	Atlanta, GA
Technical Team Lead — Cardiovascular Disease Team	March 2021 – Present

- Lead a diverse research team of undergraduate and graduate students.
- Develop novel network clustering algorithms and text mining systems.
- Identify relationships that could better predict the impact of favorable stem cell precursors for patients with cardiovascular disease or congenital heart disease.
- Presented research at Undergraduate Research Opportunities Program 2021 Spring Symposium.

Technical Team Lead — COVID-19 Team	May 2020 – March 2021
--	-----------------------

- Led a research team of 10 undergraduate students.
- Used machine learning techniques to predict repurposed drugs and risk factors for COVID-19.
- Visualized data to provide quickly understandable insights for front-line healthcare workers.
- Published a first-author paper, titled “Biomedical Text Link Prediction for Drug Discovery: A Case Study with COVID-19,” in the journal *Pharmaceutics*.

Serpooshan Lab — Vahid Serpooshan, PhD; Holly Bauser-Heaton, MD-PhD	Atlanta, GA
Research Assistant	January 2019 – April 2020

- Used 3D bioprinting techniques to advance the understanding of hypoplastic left heart syndrome, pulmonary atresia, and other congenital heart defects.
- Created accurate models of the developing heart and conducted computational fluid dynamics and in vivo simulations in order to better understand the etiology of congenital heart defects.
- Trained in CAD, 3D printers and 3D bioprinters, creation of bioinks, cell culture growth, and bright field and fluorescence microscopy.
- Published work in high-impact journals including *Advanced Healthcare Materials*.

PUBLICATIONS

- [1] **K. McCoy**, S. Gudapati, L. He, E. Horlander, D. Kartchner, S. Kulkarni, N. Mehra, J. Prakash, H. Thenot, S. V. Vanga, *et al.*, “Biomedical text link prediction for drug discovery: A case study with covid-19”, *Pharmaceutics*, vol. 13, no. 6, p. 794, 2021.

- [2] M. L. Tomov, L. Perez, L. Ning, H. Chen, B. Jing, A. Mingee, S. Ibrahim, A. S. Theus, G. Kabboul, K. Do, *et al.*, “A 3d bioprinted in vitro model of pulmonary artery atresia to evaluate endothelial cell response to microenvironment”, *Advanced Healthcare Materials*, p. 2100968, 2021.
- [3] A. S. Theus, M. L. Tomov, A. Cetnar, B. Lima, J. Nish, **K. McCoy**, M. Mahmoudi, and V. Serpooshan, “Biomaterial approaches for cardiovascular tissue engineering”, *Emergent Materials*, vol. 2, no. 2, pp. 193–207, 2019.

PRESENTATIONS

- **Using Unsupervised Machine Learning Techniques and 3D Visualization Tools to Better Understand Cardiovascular Disease**
Undergraduate Research Opportunities Program Spring Symposium April 2021
- **Using Text Mining Link Prediction to Expedite COVID-19 Research**
Biomedical Engineering Society October 2020
- **3D Bioprinted Hemodynamic Flow Models of the Developing Heart to Study Congenital Heart Disease**
Undergraduate Research Opportunities Program Spring Symposium April 2019

TEACHING EXPERIENCE

- **Teaching Assistant** at Georgia Institute of Technology January 2020 – May 2021
Computing for Engineers (CS 1371)

WORK EXPERIENCE

Data Engineer Atlanta, GA
 Georgia Tech Office of Research May 2021 – August 2021

- Used research administration data and research commercialization data to enhance visibility into campus research operations.
- Conducted data mining, data cleaning, and data wrangling on multiple data sources internal and external to Georgia Tech.
- Constructed a Neo4J graph database to store relational data and visualization tools to display graph data.
- Presented findings to senior leadership to guide strategic decision-making.

Engineering Technician Valhalla, NY
 PepsiCo Research and Development June 2019 – August 2019

- Designed and carried out experiments for the Nitro Pepsi project to ensure that the new product met all customer demands.
- Analyzed data from these experiments and presented my findings to senior leadership in order to guide decision-making.
- Worked with other PepsiCo teams effectively to carry Nitro Pepsi to market.
- Troubleshoot faulty fountain equipment, and trained in basic fountain system repair.

RELEVANT COURSEWORK

Differential Calculus	<i>Thomas' Calculus: Early Transcendentals</i> , Addison-Wesley
Integral Calculus	<i>Thomas' Calculus: Early Transcendentals</i> , Addison-Wesley
Multivariable Calculus	<i>Thomas' Calculus: Early Transcendentals</i> , Addison-Wesley

Linear Algebra	<i>Interactive Linear Algebra</i> , Dan Margalit and Joseph Rabinoff
Differential Equations	<i>Differential Equations</i> , James R. Brannan and William E. Boyce
Biostatistics	<i>Engineering Biostatistics</i> , Brani Vidakovic
Theoretical Statistics	<i>Statistical Inference</i> , George Casella and Roger L. Berger
Computing for Engineers	<i>Computation for Engineering with MATLAB</i> , David M. Smith and Holly Moore

SERVICE AND OUTREACH

Laboratory for Pathology Dynamics — Cassie S. Mitchell, PhD	Atlanta, GA
Website Administrator	January 2021 – Present
<ul style="list-style-type: none"> – Maintain the lab website by regularly publishing the research being done by a group of 40 lab members. – Advertise ways for prospective members to get involved in the lab's research. 	
Event Coordinator	August 2020 – December 2020
<ul style="list-style-type: none"> – Created, organized, and hosted learning opportunities and social events for the lab of 40 people. 	
Newtown Volunteer Ambulance Corp	Newtown, CT
Emergency Medical Technician	May 2018 – August 2020
<ul style="list-style-type: none"> – Responded to emergency 911 calls and delivered life-saving care to the critically ill and injured, and then transported patients to a nearby medical facility. – Trained student EMTs to deliver a high standard of care to all patients. 	
Undergraduate Research Opportunities Program	Atlanta, GA
Undergraduate Research Ambassador	August 2019 – December 2020
<ul style="list-style-type: none"> – Mentored Georgia Tech students and connected them with the various research opportunities inside and outside the university. – Developed workshops and informational sessions to educate the student body about research. – Presented to first-year student seminar classes about how to find research opportunities, what is expected of student researchers, and how to present one's research. 	

HONORS AND AWARDS

<ul style="list-style-type: none"> • Georgia Tech Webpage Spotlight 	April 2021
Link to article	
<ul style="list-style-type: none"> • Faculty Honors 	January 2019 – Present
<ul style="list-style-type: none"> • Con Edison Scholarship 	May 2018

SKILLS

- **Programming Languages:** R, Python, MATLAB
- **Tools:** LaTeX, Git, Terminal
- **Operating Systems:** MacOS, Linux, Windows
- **Libraries:** Pandas, NumPy, Matplotlib, Seaborn, Scikit-Learn
- **Languages:** English (Native Proficiency), German (Elementary Proficiency)

MEMBERSHIPS

<ul style="list-style-type: none"> • Biomedical Engineering Society 	October 2020 – Present
--	------------------------