Kevin McCoy

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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 *May 2022*

- *Bachelor of Science in Biomedical Engineering* GPA: 4.0

RESEARCH EXPERIENCE

Laboratory for Pathology Dynamics, Georgia Tech — Cassie S. Mitchell, PhD

Technical Team Lead — COVID-19 Team *May 2020 – Present*

- Lead a research team of 10 undergraduate students.
- Use machine learning techniques to predict repurposed drugs and risk factors for COVID-19.
- Visualize 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, Georgia Tech — Vahid Serpooshan, PhD; Holly Bauser-Heaton, MD-PhD

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 multiple high-impact journals including *Advanced Healthcare Materials*.

TEACHING EXPERIENCE

Georgia Institute of Technology, College of Computing

Teaching Assistant *January 2020 – May 2021*

- Taught an introduction to computer science course to GT engineering students.
- Led a weekly recitation of 30 students, held weekly office hours, created homework, and graded exams.

PROFESSIONAL EXPERIENCE

Georgia Tech Office of Research
Data Analyst *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.

PepsiCo Research and Development
Engineering Technician *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.
- Troubleshot faulty fountain equipment, and trained in basic fountain system repair.

SERVICE AND OUTREACH

Laboratory for Pathology Dynamics, Georgia Tech — Cassie S. Mitchell, PhD
Website Administrator *January 2021 – Present*

- 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*

- Created, organized, and hosted learning opportunities and social events for the lab of 40 people.

Newtown Volunteer Ambulance Corps
Emergency Medical Technician *May 2018 – August 2020*

- 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
Undergraduate Research Ambassador *August 2019 – December 2020*

- 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.

PUBLICATIONS

Tomov, M., Perez, L., Ning, L., Chen, H., Jing, B., Mingee, A., Ibrahim, S., Theus, A., Kabboul, G., Do, K., & others (2021). A 3D Bioprinted In Vitro Model of Pulmonary Artery Atresia to Evaluate Endothelial Cell Response to Microenvironment. *Advanced Healthcare Materials*, 2100968.

McCoy, K., Gudapati, S., He, L., Horlander, E., Kartchner, D., Kulkarni, S., Mehra, N., Prakash, J., Thenot, H., Vanga, S., & others (2021). Biomedical Text Link Prediction for Drug Discovery: A Case Study with COVID-19. *Pharmaceutics, 13(6), 794.*

Theus, A., Tomov, M., Cetnar, A., Lima, B., Nish, J., **McCoy, K.**, Mahmoudi, M., & Serpooshan, V. (2019). Biomaterial approaches for cardiovascular tissue engineering. *Emergent Materials, 2(2), 193–207.*

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*

HONORS AND AWARDS

Faculty Honors *January 2019 – Present*

- Faculty Honors Letters are awarded to undergraduate students who achieve a 4.0 GPA, while taking at least 12 credit hours worth of coursework, be in good academic standing, and have not withdrawn from a class. Received after all semesters at Georgia Tech.

Con Edison Scholarship *May 2018*

- 4-year scholarship to attend the Georgia Institute of Technology.

SKILLS

Computer: Data Analysis, Data Cleaning, Data Visualization, Python (Pandas, NumPy, Matplotlib, Seaborn, Scikit-Learn), MATLAB, Linux, Git, Terminal, LaTeX, Neo4J, Cypher Query Language, Mathematica, Tableau, Microsoft Office, Fusion 360

Interpersonal: Leadership, Teaching, Mentorship, Teamwork

Medical: CPR, AED, Oral Airways, Manual Airway Techniques, BVM Ventilation, Oxygen Therapy, Airway Functioning, Manual BP, Auto BP, Auto Injector, Bleeding Control, Assisted Childbirth, Assisted Complicated Childbirth, Humidified Oxygen, Venturi Mask, Automated Transport Ventilators, Nasal Airways, Pulse Oximetry, Assisted Medications, Spinal Immobilization, Splinting, Tourniquet

Languages: English (Native Proficiency), German (Elementary Proficiency)

CERTIFICATIONS

Emergency Medical Technician License *May 2018*
- Licenses currently held in Georgia and Connecticut.

CPR Certification, American Heart Association *August 2019*

MEMBERSHIPS

Biomedical Engineering Society *October 2020 – Present*