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COLE RUOFF

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Education

College Park, Maryland **University of Maryland** **Fall 2018 – Spring 2022**

- Bachelor of Science in Computer Science; GPA: 3.6
- Undergraduate Coursework: Data Structures; Algorithms; Programming Languages; Concurrency; Data Science; Calculus II; Linear Algebra; Machine Learning; Applied Statistics; Bioinformatics; Molecular and Cellular Biology; Genetics
- Post-baccalaureate Coursework: Cancer Immunology, Statistics for Biomedical Researchers

Experience

Post-baccalaureate Fellow **National Institutes of Health** **June 2022 - Present**

- Analyzed single-cell RNA sequencing data to identify non-genetic mechanisms of therapeutic resistance in various cancer cell lines
- Developed computational biology skills by completing various analyses
- Completed courses in cancer immunology and statistics for biological research

Research Intern **National Institutes of Health** **Feb 2021 – June 2022**

- Developed a machine learning approach to identifying the presence of a target cell in spatial transcriptomics data
- Collaborated with multiple labs to develop a model to successfully delineate cellular composition in spatial transcriptomics data
- Attended weekly lab meetings and journal clubs

Mentee **University of Maryland** **May 2020 – August 2020**

- Formed a mentorship with an assistant professor in the Department of Cell Biology and Molecular Genetics who is also a member of the Center for Bioinformatics and Computational Biology
- Executed high-performance computing jobs with sequencing data from various genomes of microorganisms from the human microbiome
- Developed python scripts to analyze and annotate sequencing data (e.g. promoter discovery, motif location)

Undergraduate Researcher **University of Maryland FIRE Program** **Fall 2018 – Fall 2020**

- Conducted research for the Engineering Biosensors stream in the University of Maryland First-year Innovation & Research Experience (FIRE) program
- Worked with a research team to develop a biosensor that can detect trace amount of microRNA that are known to be biomarkers for cancer
- Contributed required number of hours in the lab each week performing research procedures with other student researchers

Peer Mentor **University of Maryland FIRE Program** **January 2020 – Fall 2020**

- Trained new students in the laboratory technical skills including pipette usage, PCR, gel electrophoresis, DNA/RNA purification and quantification, etc.
- Taught the students general biology knowledge along with material involving aptamers and biosensors
- Held weekly meetings with students to receive updates on their progress in the lab and answer general lab questions
- Led new students on research projects in the lab

Languages and Technologies

- R; Python; Bash; Java; C; Ruby; OCaml; Swift
- RStudio; Seurat; Jupyter; High Performance Computing; Command Line; Vim; Biopython; XGBoost

Presentations

1. **Ruoff C**, Gopalan V, Hannenhalli S (05/2023). *Transcriptional Characterization of Drug-Resistant Cancer Cells*. **CCR Fellows and Young Investigators Colloquium**, National Cancer Institute, Rockville, MD. Poster
2. **Ruoff C**, Gopalan V, Hannenhalli S (04/2023). *Transcriptional Characterization of Drug-Resistant Cancer Cells*. **NIH Postbac Poster Day**, National Institutes of Health, Bethesda, MD. Poster
3. **Ruoff C**, Gopalan V, Hannenhalli S (12/2022). *Transcriptional Characterization of Drug-Resistant Cancer Cells*. **NCI Cancer Data Science Laboratory Seminar Series**, National Institutes of Health, Bethesda, MD. Seminar
4. **Ruoff C**, Gopalan V, Hannenhalli S (04/2022). *Combinatorial Approach to Detecting Emerging Rare Cell States in Tumors*. **UMD Undergraduate Research Day**, University of Maryland, College Park, MD. Poster
5. **Ruoff C**, Gopalan V, Hannenhalli S (08/2021). *Delineating Cellular Composition in Spatial Transcriptomic Data*. **NIH Summer Research Presentation Week**, National Institutes of Health, Bethesda, MD. Poster
6. **Ruoff C**, Ternovskaia C, Wirt E (11/2019). *DNA-Based Biosensor for MicroRNA Detection*. **University of Maryland FIRE Summit**, University of Maryland, College Park, MD. Poster
7. **Ruoff C,** Wirt E, Barry L, Cao V, Goodson J, Winkler W, Spirito C (10/2019). *Aptamer Selection Against Mutant Bacterial Antiterminator Protein NasR R340K*. **UMBC Undergraduate Research Symposium**, University of Maryland Baltimore County, Baltimore, MD. Poster