Daniel Green

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Education

University of Arkansas: Fayetteville Aug 2018-May 2022
Major: *B.S Biomedical Engineering*

Related Coursework: Biomaterials, Modeling and Number Methods, Tissue Engineering, Genome Engineering and Synthetic Biology, Biomechanics, Biomolecular Engineering and Transport Phenomena

Lab Skills

Biomedical Skills
- PCR/qPCR programs
- Electrophoresis
- Cell passaging
- DNA extraction
- Plasmid preparation and purification
- DNA Sequencing
- High-Performance Liquid Chromatography (HPLC)
- Fast Protein Liquid Chromatography (FPLC) and column
- IHC
- Mouse handling

Chemistry Skills
- pH manipulation and buffer formulation
- Organic and inorganic filter
- Lysis reactions
- Washing and Elution
- Antibiotics

Computer Skills

Programs
- Python
- MATLAB
- R
- C++
- Quartus

3D modelling/printing
- SolidWorks
- 3D printing
- Laser cutting

Experience

The University of Pittsburgh: Pittsburgh, Pennsylvania August 2024-Present
Research Technician III
- Bioinformatics
  - Tumor analysis using Phenochart analysis program
- Mouse colony management
  - Breeding
  - Weaning

    - Injections/medications
- Genotyping
    - I created a protocol for DNA extraction and genotyping
    - Melt
- Immunohistochemistry
    - Organ dissection
    - Cutting slides
    - Staining

The Jackson Laboratory: Bar Harbor, Maine July 2023-July 2024
Genotyping Technologist II

- DNA Sequencing
    - Cross referencing multiple sets of data to conclude results
        - Sanger Sequencing
        - Applied Biosystems

- PCR
    - Roche End-Point
- Validated regents and controls for PCR platforms
- Ancillaries of department
- DNA extraction
- Preparation and Operation of Mouse DNA

Mercy Hospital: Rogers, AR June 2022-Feb 2023
Laboratory Support Technician II

- Phlebotomy of patients
    - Blood draw of infants and adult patients
    - Observing patient specific protocols
- Bacteria cultures
- Collection and handling of biohazard materials
- Departmental lab supply management
- Adhering directly to Doctor and Nurse specific guidelines

University of Arkansas: Cato Springs Research Center, AR May 2021-March 2022
Research Assistant

- Dr. Christopher Nelson
    - Research Project: quantify and present to the Biomedical department the genetic sequencing errors created due to use of the AAV vectors in Dr. Nelson's DMD research
        - Studied disease: Duchenne Muscular Dystrophy
        - Method: Independently curated a search program using python and MATLAB to present the results
- Dr. Qian Xianghong with team of PhD students
    - Research Project: integration of high volumes of DNA into AAV2 to reduce costs and create an SOP for new scientific processes
    - MVM production and Purification

University of Arkansas: Fayetteville, AR Spring 2022
Teaching Assistant: Dr. Qian Xianghong
Course: Biomedical modeling and number methods

- Tutored Students
  - MATLAB
- Created course rubrics for exams and homework
- Graded students in academic environment

Poison City Craft Brewing Company/031 Gin Bar: Durban, South Africa 2017-2018
Sales, Marketing and Promotional Manager

- Managed Daily Operations of Bars and Stores
  - Employee scheduling and training
  - Stock Management of multiple locations
  - Oversaw and created training programs for inhouse operations

- Event Planner
  - Staffing, Transportation, Equipment
  - Working directly with event/festival coordinators
- Innovating promotional strategies
- Creating and reviewing weekly sales reports for store operations and promotions

References:

Dr. Qian Xianghong
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Biomedical Engineering Dep.
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Dr. Christopher Nelson
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Liam Anderson
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Dr. Evan Delgado
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Since childhood, I have been enthralled with the concept of biomedical engineering. As I moved through grade school, I was exposed to the subjects of genetics, molecular and cell biology and so knew at a young age my career calling. During my pursuit of a B.S. in Biomedical Engineering at the University of Arkansas I learned of the interdisciplinary nature of the field and its role in such subjects as systems biology, biomolecular and tissue engineering, proteomics, and disease pathology to name a few. My classwork in these areas alerted me to the need to interpret and manage large volumes of data so I added computer science to my curriculum and found my passion for programming.

During my studies at the University of Arkansas, I had two opportunities for research. I spent three semesters working on plasmid research and Minute Virus of Mice (MVM) production and purification with Dr. Xianghong Qian and the CATO Springs Research Centre and served as her Teaching Assistant for the Biomedical Modelling and Numerical Methods class. Another semester I worked under Dr. Nelson on a bioinformatics project reporting on an unintentional DNA sequencing insertions/deletions found in his Duchenne Muscular Dystrophy (DMD) research. I had the opportunity to write a search program in python and used MATLAB to present the data to the Biomed department. Post-graduation, I worked at a Mercy hospital in Arkansas as a Lab Support Tech and at The Jackson Laboratory as a Genotyping Technician performing various molecular biology assays including PCR and DNA sequencing. Other molecular responsibilities included the DNA extractions and verifications of DNA control samples like the B6 mouse. Currently I am employed at the University of Pittsburgh Department of Pathology as a Research Tech III in the laboratory of Dr. Evan Delgado. In this position my general responsibilities include the following, a variety of immunohistochemistry techniques, genotyping, management of the mouse colonies, and bioinformatics-based analysis. Since starting in August of this year, I have streamlined the genotyping process using my own protocol that reduced the amount of mouse sample, lab waste, and time.

Admission into the Computational Biology PhD program within the Department of Computer Science at Columbia Engineering would provide me the opportunity to pursue my career goal of creating a product or service that improves the lives of people and expanding our knowledge of within the field. Columbia's Computational Biology Group is at the forefront of utilizing and developing computational and experimental approaches from the fields of genetics, genomics, and systems biology to evolve new tools of analysis to further understand genetic variants within species, primary human SNP and sequencing data and therefore advance healthcare. I am interested in the software development, biomolecule, and genomics research of Dr. David Knowles, Dr. Kenneth Ross, Dr. Ansaf Salleb-Aouissi, and Dr. Mohammed AlQuraishi. I believe that I bring a solid understanding of molecular biology and techniques, a proven record in data analysis and programming, a strong work ethic, and a passion to find answers to new and old problems. I also believe that I may be able to bring new ideas and perspective having grown up in South Africa. The Computational Biology program in the CS department at Columbia would afford me the opportunity to work with leaders in the field and further pursue my passion.