JARED BLAKE COLLINS

BIOINFORMATICS ENGINEER, DANA FARBER CANCER INSTITUTE

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Cambridge, MA 02139

EDUCATION

MS Georgia Institute of Technology, Biological Sciences — May 2023
Thesis: "Mechanisms of Coherence and Incoherence between GWAS and Single-Cell eQTL Effects in Crohn's Disease"
Advisor: Dr. Greg Gibson
Committee: Dr. Joseph Lachance, Dr. Jingjing Yang
Cumulative GPA: 4.0

BS Georgia Institute of Technology, Biological Sciences — May 2022
Graduated with Highest Honors
Certificates in Biomolecular Technology and Biomedical Science
Cumulative GPA: 3.83

HONORS AND AWARDS

Graduation with Highest Honors — 2022
Georgia Institute of Technology

Terrill Graduate Fellowship — 2022
Graduate fellowship awarded based on scholastic record to rising graduate students

Randy Rhoads Memorial Scholarship — 2021
Award given in memory of Randy to those exemplifying his memory and character

Zell Miller Scholarship — 2018-2022
Merit-based scholarship for GA residents who demonstrate academic achievement

RESEARCH EXPERIENCE

Dana Farber Cancer Institute, Boston, MA — 2023-Present
Bioinformatics Engineer, Bandopadhayay and Beroukhim Labs

- Conducted novel analysis of drug resistant using combined single-cell transcriptomics and single-cell evolutionary clone-tracking barcode technology
- Developed and applied statistical methods to analyze and compare high-dimensional single cell and spatial multi-omic datasets

- Analyzed single cell and spatial RNA-seq data from longitudinal serial biopsies as part of paradigm shifting clinical trials in GBM alongside collaborators worldwide
- Prepared and interpreted large and complex biological datasets across multiple data modalities in adult & pediatric brain tumors

Georgia Institute of Technology, Atlanta, GA 2022 to 2023
Student Researcher, Greg Gibson Lab

- Characterized Systemic Lupus Erythematosus and plasma cell development via analysis of single-cell RNA-seq data from PBMCs and bone marrow derived cells
- Evaluated coherence between genomic and transcriptomic predictive health measures for Crohn's Disease and SLE at the single-cell level

Thesis, Georgia Institute of Technology, Atlanta, GA 2023
Advisor: Greg Gibson

- Uncovered stark differences in predictive health measures when assessed at the bulk tissue versus single-cell resolution

Lucid Scientific, Atlanta, GA 2022
Biologist Intern Researcher

- Analyzed oxygen consumption rate of iPSCs during induced differentiation to cardiomyocytes
- Conducted metabolic assays to verify multiple adherent and suspension cell lines for research use with RESIPHER
- Characterized metabolic activity during induced T cell activation and differentiation

Georgia Institute of Technology, Atlanta, GA 2020 to 2021
Undergraduate Researcher, Yunker Evolutionary Mechanics Lab

- Designed novel method to explore bacterial heteroresistance and evolution across porous cultures
- Created new apparatus for bacterial growth and application of selective forces
- Explored multicellular sparse topologies & selection favoring specialization with waning fitness return

TEACHING EXPERIENCE

Georgia Institute of Technology, Atlanta, GA Aug 2021 to May 2023
Undergraduate/Graduate Teaching Assistant, School of Biological Sciences

BIOS 1107 Lecture TA Aug 2022 to May 2023

- Created and held weekly lectures and review sessions for 80+ students
- Wrote and conducted test reviews to bolster student understanding and engagement
- Taught weekly recitation and guided flipped-classroom style sessions 3x weekly
- Graded all course assignments including daily work and monthly essays

BIOS 1108 Lab TA Aug 2021 to May 2022

- Led two wet laboratory classes of 24 students in lecture and experiments across a range of biological sciences
- Mentored students in cell culture, animal handling, and statistical analysis skills
- Graded all coursework alongside co-TA

Roswell High School, Roswell, GA Aug 2017 to May 2018
Teaching Assistant, Japanese

- Wrote and conducted a number of lecture sessions for an advanced Japanese class
- Scripted and filmed review videos for each course unit to be shown each year
- Held daily help sessions to address and real-time student questions

PUBLICATIONS

Journal Papers in Review

Dr Eric Morin , Dominik Sturm , Dr Georges Ayoub , Mr Jeromy DiGiacomo , Mr Sher Bahadur , Ms Bhavyaa Chandarana , Dr Phoebe Power , Ms Margaret Cusick , Ms Dana Novikov , Mr Robert Jones , Ms Jayne Vogelzang , Mr Connor Bossi , Seth Malinowski , Mr John Jeang , Mr Jared Collins , Ms Sehee Oh , Dr Hyseung Jeon , Ms Amy Cameron , Mr Patrick Rechter , Ms Angela Deleon , Mr Karthikeyan Murugesan , Meagan Montesion , Dr Lee Albacker , Dr Shakti Ramkissoon , Dr Cornelis van Tilburg , Dr Emily Hardin , Dr Philipp Sievers , Professor Felix Sahm , Dr Kee Kiat Yeo , Dr Tom Rosenberg , Susan Chi , Dr Karen Wright , Mr Steve Hebert , Dr Sydney Peck , Dr Alberto Picca , Dr Valérie Larouche , Dr Samuele Renzi , Dr Tejus Bale , Dr Amy Smith , Dr Mehdi Touat , Dr Nada Jabado , Professor Eric S. Fischer , Dr Michael Eck , Dr Lissa Baird , Professor Olaf Witt , Dr Claudia Kleinman , Dr Quang-De Nguyen , Dr Sanda Alexandrescu , Dr David Jones , Dr Keith Ligon , Pratiti Bandopadhayay. "A diverse landscape of FGFR alterations and co-mutations defines novel therapeutic strategies in pediatric low-grade gliomas," Submitted To: *Nature Communications.*

PRESENTATIONS

Oral Presentations

Third Annual DFCI and Everest Retreat on Paediatric Low-Grade Gliomas
"Computational Approaches for Spatial Omics Data"
Sep 2024

Revolutionizing GBM Therapy TeamLab Seminar
"Serial Biopsy Uncovers Anti-Glioblastoma Responses Not Evident by Single Sampling"
April 2024

Georgia Institute of Technology Public Thesis Defense
"Mechanisms of Coherence and Incoherence
between GWAS and Single-Cell eQTL Effects in Crohn's Disease"
April 2023

Poster Presentations

Broad Institute Retreat
"Histology Specific Tissue Architecture and Cell-Cell Communication in LGGs and GNTs"
Dec 2024

Broad Institute Cancer Program Retreat
"Spatial Transcriptomics Unveil Tissue Architecture Heterogeneity across LGGs and GNTs"
Nov 2024

21st International Symposium on Pediatric Neuro Oncology
"Extracellular matrix remodeling reveals non-cell autonomous tumor formation mechanism in Adamantinomatous Craniopharyngiomas"
June 2024

International Symposium on Pediatric Neuro-Oncology
"Evolutionary dynamics of MEK inhibitor sensitivity and resistance in diffuse midline gliomas"
June 2024

Georgia Tech Undergraduate Capstone Poster Session
"Structural Analysis of IFN-λ1to Inform Drug Development for SLE"
April 2022

PROFESSIONAL AFFILIATIONS

Dana Farber Cancer Institute, 2023-Present
Bioinformatics Engineer

Broad Institute of MIT and Harvard, 2023-Present
Affiliated Researcher

Lucid Scientific, 2022
Biologist/Researcher

- Verified multiple cell lines for RESIPHER research by designing and conducting device application tests and metabolic activity assays
- Performed product research and development uncovering key component vulnerabilities and implemented solutions recovering $100,000 of material losses
- Conducted large scale data analysis on device performance for quality control and optimization, informing a range of improvements in manufacturing processes

City of Atlanta Department of Watershed Management, 2021

- Performed laboratory testing to ensure quality chemical water purification for 1.2 million customers
- Designed potential process for biodegradation of microplastics in drinking water reservoirs

COMMUNITY SERVICE

Cambridge Community Learning Center
Tutor/Volunteer, Cambridge MA, Sep 2024 – Present

Broad Discovery Center
Meet a Scientist Volunteer, Cambridge, MA, Dec 2023 – Present

Cambridge Science Festival
Science Outreach Volunteer, Cambridge, MA, Sep 2024

Atlanta Mission Homeless Shelter
Volunteer, Atlanta, GA, Jan 2022-May 2023

LANGUAGES AND SKILLS

English: Native Language

Japanese: Novice Listener, Novice Speaker, Intermediate Reading and Writing

Programming: Python, R, Bash, C#, Java, JavaScript, WDL

REFERENCES

Dr. Pratiti Bandopadhayay, Associate Professor of Pediatrics
Division of Medical Sciences, Pediatrics
Harvard Medical School
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Dr. Rameen Beroukhim, Associate Professor of Medicine
Division of Medical Sciences, Medicine
Harvard Medical School
Email: Rameen_Beroukhim@dfci.harvard.edu

Dr. Greg Gibson, Professor and Director
Center for Integrative Genomics
Georgia Institute of Technology
Email: greg.gibson@biology.gatech.edu