

The Leading Edge Newsletter



Welcome First
Years

August 2023

*in collaboration with the
BCDB DEI Committee*

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Message From the Director

A new academic year is here, and we welcome the new first-year students to the BCDB Program! No doubt, everything seems overwhelming right now—not least all those program acronyms and so many buildings called Rollins!—so we encourage you to ask for help from BCDB faculty, current students and our program administrator Amy Walker. As you begin your PhD journey in the BCDB Program with its innovative teaching and diverse research experiences, it is important to think about these opportunities as a time to learn and explore new areas of science, ask questions, and identify what type of mentoring and lab environment works best for you.

I became the Director of BCDB in July 2021 (after being Director of Graduate Studies (DGS) during the COVID-19 pandemic) and I have learned that flexibility is key to success as a program. Our program has undergone many changes ranging from our approaches to recruiting the best and brightest incoming classes (that's all of you!), to taking on new changes in the curriculum, like updating the format of Advanced Seminar (with Mike Koval) to incorporate Ethics. This change had the added benefit of providing opportunities for students to give shorter (~15 min) talks, much more like those that given at scientific conferences. We have also heard loud and clear that students want our faculty to be trained in the most up-to-date Diversity, Equity, and Inclusion (DEI) practices and, with former DEI Chair Hyojung Choo and new DEI chair Jennifer Kwong, we have attempted to provide this training in the form of multiple online opportunities and in-person training events. This training is now required for BCDB faculty teaching in Foundations or hosting rotations students. Finally, additional changes extend to our upcoming retreat—incorporating suggestions from faculty and students alike on how to make our retreat more inclusive so that everyone has equal opportunity to participate in this important event. For the first time, this year the retreat was held on a Friday and in town, in the hope that more senior students and faculty could attend. Change is good and we are excited about potential further changes in the future!

Lastly, I would like to end by strongly encouraging you all to take advantage of your time in the BCDB program by attending student and other research seminars and expanding your research interests. Upcoming October seminars of note include GDBBS awardees Dr. Wade Powell (recipient of the GDBBS alumni award and BCDB graduate from the Reines lab) and Sharon Milgram (recipient of the GDBBS alumni award). These seminars will be outstanding, and I hope you will join to celebrate these awardees!

First Year Highlights

Welcome to our First years and those starting in Fall 2023. We are excited you are here and cannot wait to see how you will grow over the next year.

This newsletter is in collaboration with the BCDB DEI Committee. Questions with a ★ were provided by the DEI Committee.



Zachary Bressman

Hometown: Nashville, TN

Undergrad: Haverford College

Research interests: RNA regulation at the post-transcriptional and post-translational level. I am especially interested in RNA-binding proteins.

Why did you join Emory's BCDB graduate program? Emory stuck out to me as a particularly friendly and supportive environment to pursue my interests in.

★**Who is someone from your personal or professional life that significantly influenced your decision to pursue a PhD?** My past mentors at Haverford and Vanderbilt inspired me to continue my research to the PhD level. Most notably, Amy Cooke who got me interested in RNA-binding proteins and Heather Pua who I have worked for the past couple of years were big inspirations to me.

★**Do you have any unique or unexpected talents?** I sing a lot when I am on my own or with my family, and I also sing in public, albeit more quietly. You might hear me singing while I am doing lab work.

★**Outside of academics, is there something you hope to accomplish while in graduate school?** I want to get involved in disability advocacy at to try to encourage more people with physical disabilities to pursue scientific research.

Hometown: Elkhart, IN

Undergrad: Hope College

Research interests: I have many research interests including how the epigenome is affected by various disease pathologies and how it can affect protein structure/function.

Why did you join Emory's BCDB graduate program? I joined Emory BCDB because of their direct emphasis on interdepartmental collaboration. While striving to perform cutting edge research at Emory I also want to make strides to unify the scientific community.

★**Who is someone from your personal or professional life that significantly influenced your decision to pursue a PhD?** My PI from Hope College Dr. Jeffery Johnson.

★**Do you have any unique or unexpected talents?** I know how to juggle.

★**Outside of academics, is there something you hope to accomplish while in graduate school?** I would like to run a marathon at some point in my graduate school journey.



Luke Shoemaker

Hometown: Houston, TX

Undergrad: Swarthmore College

Research interests: I've mainly been in microbiology labs, but I'm honestly open to anything as long as the people I'm working with are excited about the work we do. If I had to narrow it down, I would say protein synthesis, functionality, and identification.

Why did you join Emory's BCDB graduate program? I joined because Emory felt like home. Before even being admitted, I got the sense that Emory and BCDB actually cared about me as a person first, so it was an easy choice!

★**Who is someone from your personal or professional life that significantly influenced your decision to pursue a PhD?** I would say my former Post-Doc, Dr. Aisha Burton. She was the first black woman I ever worked with in science and she made me feel safe, supported, capable, and empowered to fall and get back up again even stronger.

★**Do you have any unique or unexpected talents?** When I was a kid, I memorized all of the fast food menus (including the numbers, all the seasonal items, and deals) because I loved food so much and wanted to get it quicker.

★**Outside of academics, is there something you hope to accomplish while in graduate school?** I'm honestly hoping that I discover a new hobby and get really good at it! I'm thinking adult gymnastics or maybe even ballet (something that gets me moving and gets me out my comfort zone a bit)!



Tiara Tillis

First Year Highlights

Hometown: Dale, IN
Undergrad: Indiana University
Research interests: I am interested in regulatory pathways, gene editing, and regenerative medicine.
Why did you join Emory's BCDB graduate program? I joined Emory's BCDB graduate program because of the faculty research areas and the professional development opportunities.
★Who is someone from your personal or professional life that significantly influenced your decision to pursue a PhD? My PI from Indiana University, Dean Rowe-Magnus, significantly influenced my decision to pursue a PhD.
★Do you have any unique or unexpected talents? I can play the violin and swim competitively.
★Outside of academics, is there something you hope to accomplish while in graduate school? I hope to make meaningful connections and experience Atlanta cuisine.



Hometown: Alpharetta, GA
Undergrad: Georgia Institute of Technology
Research interests: My primary research interests lie in Immunology and novel therapeutics; I also find bacterial quorum sensing interesting. My past research focused on yeast proteins as models of amyloids and prions.
Why did you join Emory's BCDB graduate program? Emory was always a dream school of mine, even as a high schooler. It was when I started meeting the amazing people in the BCDB program, though, that I knew this is exactly where I want to do my PhD.
★Who is someone from your personal or professional life that significantly influenced your decision to pursue a PhD? My father, who holds a PhD, has always been my role model and biggest supporter. I cannot thank him enough for always being by my side.
★Do you have any unique or unexpected talents? I was trained in a classical Indian singing style (called "Carnatic") for 12 years!
★Outside of academics, is there something you hope to accomplish while in graduate school? I really hope to attend conferences and meet fellow researchers at other institutions. I would also love to be a part of any DEI initiatives or volunteer organizations where I can give back to the Emory community.



Hometown: Framingham, MA
Undergrad: Juniata College
Research interests: I'm primarily interested in protein interactions, especially if they have a medicinal aspect. However I find all research fascinating and would love to hear about the work everyone is doing. I love to see other people's passion for their work.
Why did you join Emory's BCDB graduate program? I'm really interested by a lot of the research going on at Emory. I also wanted to get a change of scenery away from my hometown just outside Boston.
★Who is someone from your personal or professional life that significantly influenced your decision to pursue a PhD? I wanted to get a PhD because I wanted to learn the skills I saw my PhD counterparts had like being able to apply their knowledge and skill to a variety of topics with so much more ease than I could.
★Do you have any unique or unexpected talents? I love to crochet (similar to knitting) and have made 17 blankets for friends and family since the start of Covid19.
★Outside of academics, is there something you hope to accomplish while in graduate school? To finally make a crocheted blanket for myself, just need to find a break in between gift blankets.



First Year Highlights



Steven Cai

Hometown: Qingdao, China
Undergrad: Rensselaer Polytechnic Institute
Research interests: Something about protein. Design? Structure? Synthesis? Still exploring.
Why did you join Emory's BCDB graduate program? There are a lot of nice people and great science.
★**Who is someone from your personal or professional life that significantly influenced your decision to pursue a PhD?** My grandparents are both PhD in biomedical science. I want to pursue their way in doing science.
★**Do you have any unique or unexpected talents?** I like singing and karaoke.
★**Outside of academics, is there something you hope to accomplish while in graduate school?** I just want to live a good life and enjoy my time.

Hometown: Boxborough, MA
Undergrad: Worcester Polytechnic Institute
Research interests: I am interested in utilizing computational and structural biology to study antimicrobial drug resistance, understanding protein dynamics and developing drugs less susceptible to resistance. More specifically, I hope to utilize my time at BCDB to study antibiotic resistance
Why did you join Emory's BCDB graduate program? The BCDB program has amazing faculty and resources that I knew can support the type of research I wanted to do. In addition, the collaborations between BCDB and various other departments puts me in a unique position to take my research in many exciting directions
★**Who is someone from your personal or professional life that significantly influenced your decision to pursue a PhD?** My undergraduate thesis advisor, Dr. Celia Schiffer, was an amazing mentor who introduced me to the basics of structural and computational biology. I was lucky to be mentored by her for 3 years and work with amazing PhD and MD/PhD students who not only did cutting edge science that had a huge impact on patient care.
★**Do you have any unique or unexpected talents?** I have a wood shop in my garage where I make all kinds of furniture and various other projects.
★**Outside of academics, is there something you hope to accomplish while in graduate school?** I recently opened a woodworking business with a friend from medical school and throughout graduate school I hope to continue to grow that.



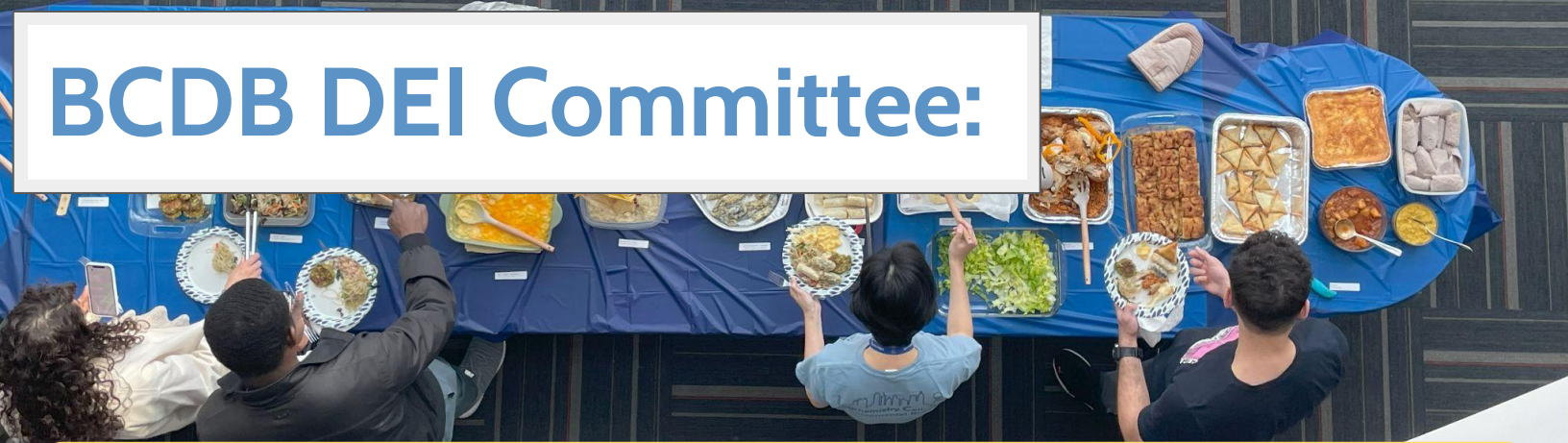
Mina Henes
(MD/PhD student)



Samuel Gallant

Hometown: Cary, NC
Undergrad: Appalachian State University
Research interests: My research interests include discovering the mechanism behind disease progression and injury recovery within lung tissues systems. I am especially drawn to the translational side of research and therapy development using novel in vitro systems.
Why did you join Emory's BCDB graduate program? BCDB has an abundance of research and social resources available to every student in the program.
★**Who is someone from your personal or professional life that significantly influenced your decision to pursue a PhD?** My PI during my first full time position at UNC.
★**Do you have any unique or unexpected talents?** Can't think of one.
★**Outside of academics, is there something you hope to accomplish while in graduate school?** I hope to further develop my professional skills in public speaking and time management.

BCDB DEI Committee:



Faculty Chair: Dr. Jen Kwong - 3 year term beginning August 2023; also serves on the BCDB executive committee

President: Ziben Zhou - as president he organizes quarterly meetings and represents the BCDB program in the GDBBS DEI Committee

Subcommittees: Events subcommittee, chaired by Ziben Zhou, the Communications subcommittee, chaired by Will McFadden, and the Policy subcommittee, chaired by Taylor Hailstock

Mission: The BCDB DEI committee is formed by students and faculty who will work together to create systemic change within the program (as well as in GDBBS and LGS) to generate a more inclusive, and more equitable environment that support success of both students and faculty, especially if they identify as a member of a group historically underrepresented in the sciences and academia. The BCDB DEI committee will foster a more inclusive, more equitable environment for our diverse students and faculty, which will enhance success of graduate studies and academic careers.

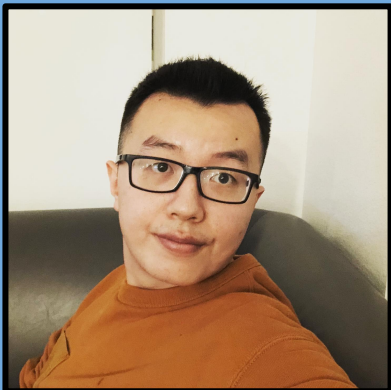
How to become a member: All BCDB students and faculty are invited to our hosted events and meetings. Students and staff are also encouraged to check out the events that we send out in our quarterly newsletter.

To join the DEI committee, students should email the DEI president, currently **Ziben Zhou** (ziben.zhou@emory.edu) and faculty should email the DEI EC chair, **Dr. Jen Kwong** (jennifer.kwong@emory.edu) about their interest in participating!

Ongoing initiatives of DEI committee include hosting DEI-related social events and ethics seminars, distributing information about opportunities for underrepresented students and upcoming DEI workshops, implementing mandatory and useful DEI training for BCDB faculty, and overall working to improve the diversity, equity and inclusion of the BCDB program.

The next full DEI committee meeting will be held at the start of the fall semester. Contact Ziben or Dr. Kwong for more information!

Interview with DEI Committee president, Ziben Zhou



Ziben Zhou
DEI Committee president
Gorkin Lab

What does diversity, equity, and inclusion (DEI) mean to you? For me, DEI means creating an atmosphere where everyone in our program is treated respectfully and feels at ease, no matter where they come from. PhD life is already tough and sometimes tiring, so having a safe and supportive environment in the program is really important to make our lives a bit easier.

What do you see as fundamental characteristics of organizations that create an inclusive environment? Building an inclusive environment certainly hinges on diversity as a crucial factor. Personally, when I'm working on organizing an event, I often find myself confined by my own background. Yet, having an amazing group of DEI committee members with diverse backgrounds makes the whole process much smoother.

How has your identity played into your career? As a Chinese international student, my identity has significantly shaped my career path. Adapting to new cultures and academic challenges has honed my adaptability and resilience. While distance from home and language adjustments have posed challenges, they've also fueled my determination of promoting diversity and cultural exchange.

How have you engaged personally in DEI initiatives? In addition to my role on the DEI committee for the BCDB program, I've been deeply engaged in DEI efforts within my high school. This involvement has seen me giving talks on DEI topics and contributing to the development of a system aimed at preventing sexual assaults.



Student Summer Accomplishments

Awards

Sarah Strassler: Winner of the Lew Career Award.

Emily Legan: Winner of the Lew Best paper Award.

Heidi Ulrichs: Winner of the Lew Best paper Award.

Colby Schweibenz: BCDB 2023 Student of the Year Award

Megan Hinrichsen: Winner of the Lew First Year award.

Nasab Ghazal: Winner of the Lew First Year award.

Mohamed Barmada: Winner of the Lew First Year award.

Publications and Fellowships

Taylor Hailstock: Chosen as one of only 50 students nationwide to become a 2023 Gilliam Fellow.

Will McFadden: Published a review article titled 'Biology of the hepatitis B virus (HBV) core and capsid assembly modulators (CAMs) for chronic hepatitis B (CHB) cure'

Heidi Ulrichs: Published a primary research article titled 'Multicomponent regulation of actin barbed end assembly by twinfilin, formin and capping protein''

Alumni Corner

**Maria
Sterrett, PhD**

Graduation

Date:
March 31, 2023

New Job:
**Postdoctoral
IRACDA Fellow
at Tufts
Medical in the
lab of Dr. Claire
Moore**

What excites you most about your new job?

As an IRACDA fellow, I am most excited to be part of a broad community of motivated educators who are all committed to inclusive STEM education. Through this fellowship I will also gain more skills as a mentor and educator that I know will help me continue pursuing my ultimate career goal of being a professor.

What are skills you acquired during your PhD that made you a strong candidate for your new job?

I probably can't list all the skills I gained through BCDB that have prepared me for this next step. Of course, as a PhD student, we learn how to problem solve and critically analyze. These skills are at the core of PhD training and will assist me in pursuing postdoctoral research. In terms of what has prepared me for an IRACDA program, I think the opportunities to pursue mentorship and teaching during my graduate studies were vital. I had the opportunities to mentor undergraduate and high school students at the bench, teach graduate level and undergraduate courses, and even develop my own course for summer college experiences all while pursuing my PhD. I also pursued opportunities through Laney Graduate School and the Center for Faculty Development and Excellence (CFDE) that taught me pedagogy principles and inclusive STEM practices. Through these experiences I gained confidence in myself as an educator as well as a toolbox of skills I can implement in a classroom that I plan to continue adding to through my IRACDA fellowship. The amount of opportunities I pursued is reflective of the culture of mentorship within BCDB and Emory itself. I also think the culture of BCDB, providing space to discuss DEI and community amongst students, gave me intangible skills that bolstered me to pursue my own passions and continue in academia.

Is there anything else you would like to share (career, personal, advice, etc.) with current BCDB students?

Pursue opportunities in graduate school that excite you about your future career! Be it teaching, industry, consulting, policy, advocacy, etc., I think having those opportunities make the hard, frustrating days a lot more bearable. I also would say to start pursuing those opportunities early but scale them to what you can handle. Maybe as a first or second year, you just go to some trainings, attend a seminar, or do some informational interviews. Third, fourth and fifth year, maybe then try teaching that semester course, or attending that intensive course, or pursuing a summer internship. Graduate school is a marathon, as is your career. You don't have to pursue all the opportunities immediately, but pursuing things that excite you bit by bit throughout your time at Emory will shape your experience and help bring some joy to the process.



Faculty Feature

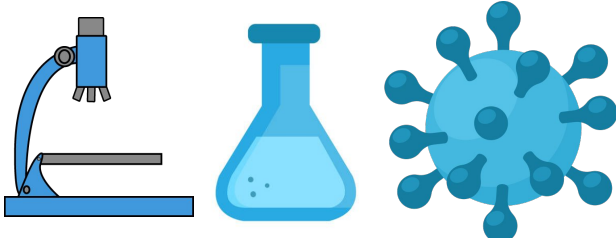
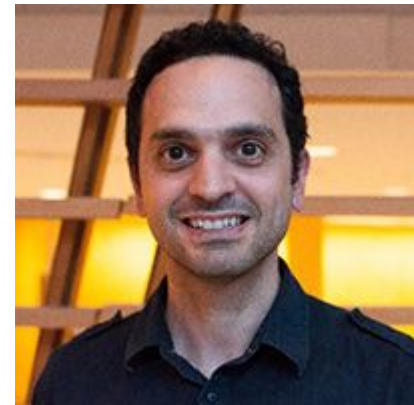
Dorothy Lerit, Ph.D. joined Emory in 2016 and is an Associate Professor in the Department of Cell Biology and a member of the Winship Cancer Institute. She is on the BCDB Executive Committee and currently serves as Director of Senior Student Progression. Research in the Lerit lab examines mechanisms of centrosome regulation leveraging cell biology, developmental biology, and genetics approaches with the goal of understanding how centrosomes tune their activity as microtubule-organizing centers and how this process is deregulated in disease contexts, including microcephaly and cancer. She currently mentors two BCDB students (Taylor and Joey), who both recently obtained independent funding! She recently wrote about developing her mentoring style in an award essay for the 2022 American Society for Cell Biology Günter Blobel Early Career Award.



Shoichiro Ono, Ph.D., joined Emory faculty in 2000 in the Department of Pathology with a secondary appointment in the Department of Cell Biology. He served on the BCDB Executive Committee from 2011-2020 as Chair of Examinations. His lab focuses on regulatory mechanisms of actin cytoskeletal dynamics with an emphasis on contractile structures (sarcomeres) in muscle cells. His research employs in vitro biochemistry and in vivo genetics/cell biology using *C. elegans* to address the basic mechanism of sarcomere assembly and maintenance. Major discoveries include identifications of actin disassembly proteins (ADF/cofilin, AIP1, and CAP) as essential factors for proper sarcomere assembly. These proteins are conserved among eukaryotes and involved in cytoskeletal regulation in a variety of cell types. A long-term goal is to understand how dynamic changes in the shape of cells and tissues are regulated.



Lefteris Michailidis, Ph.D., joined Emory in September 2021 as an Assistant Professor in the Department of Pediatrics, Division of Laboratory of Biochemical Pharmacology. His research focuses on understanding the interplay between viruses and host with a particular interest on chronic infections by hepatitis B virus (HBV) and HIV, and emerging viruses such as coronaviruses. The lab combines both traditional molecular biology methods and more advanced multi-omics and genetic screening applications. In addition, the lab works on developing liver-disease models (chronic HBV, fatty liver disease) based on primary human hepatocytes and humanized mice. The ultimate goal is to identify and characterize cellular mechanisms that control viral infections and exploit them for developing curative therapies. The lab recently relocated to the new HSRB II building. Outside the lab, Lefteris has been an active BCDB member as the co-director of the BCDB Foundations course and as a member of the BCDB EC and BCDB DEI committees.



Join Communications Committee!

CONTACT

Faculty chair: Bo Liang

Student leads: Hannah Hrcir & Heidi Ulrichs

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