UCLA QCBio **September 28, 2021**

Fall 2021 Newsletter

CONTENTS:

UPCOMING EVENTS:

- **QCB Research Seminars**:
  Starting on October 13th, 2021
  Every Wednesday:
  - 12pm: 1st talk
  - 12:30pm: lunch
  - 1:00pm: 2nd talk

- **Symposium on Software & Computational Tools @UCLA:**
  in Winter 2021

Computational Biosciences Undergraduate Research Portal

https://qcb.ucla.edu/research-portal/

This portal was designed to connect UCLA faculty and UCLA undergraduates around biosciences research projects that involve data analysis or modeling, using the computational approaches of Bioinformatics and Systems Biology.
UCLA students contribute substantively to the research programs of UCLA laboratories and UCLA laboratories play key roles in preparing aspiring leaders in the field.

PROJECTS : Please submit your new projects via this short form: Undergraduate Research Project Form (you may submit multiple projects, one for each submitted form).

Fields of Interests:

BIOMEDICAL IMAGING AND INFORMATICS | COMPUTATIONAL GENETICS AND GENOMICS | COMPUTATIONAL CELL AND SYSTEMS BIOLOGY | COMPUTATIONAL NEUROSCIENCE | MATHEMATICAL BIOLOGY AND ECOLOGY

UCLA QCBio

QCBio Research Seminars

Spring 2021
(Fridays, 11 & 11:30)

- **Arjun Bhattacharya** (Pasaniuc)
- **Xinzhou Ge** (Li JJ)
- **Casey Barkan** (Wang)
- **Aliya Lakhani** (Park)
- **Juan de la Hoz** (Olde Loohuis & Freimer)
- **Alec Chiu** (Sankararaman)
- **Ashfaq Ahmed** (Venugopal)
- **Alexis Weber** (Geschwind & de la Torre-Ubieta)
- **Erin Molloy** (Sankararaman)
- **Ruochen Jiang** (Li JJ)
- **Brian Orcutt-Jahns** (Meyer)
- **Rian Ding** (Hsu)
- **Olga Schubert** (Kruglyak)
- **Shamus Cooley** (Deed)
- **Jakob von Morgenland** (Venugopal)
- **Yi Ding** (Pasaniuc)
- **Amelia Palermo** (Graeber)
- **Nan (Miles) Xi** (Li JJ)

Thank you to all the presenters!!!

Some of the past video presentations can be found here:

. **On the QCBio website:**
https://qcb.ucla.edu/events/list/?eventDisplay=past

. **On the QCBio YouTube Channel:**
https://www.youtube.com/channel/UCokAYrjf_TaziPtmn6l4-5A

Summer 2021
(Fridays, 2pm)

In collaboration with B.I.G. Summer:

- **Alexander Hoffmann:** "A Journal Club presentation: Iterative Modeling Reveals Evidence of Sequential Transcriptional Control Mechanisms"
- **Jessica Li:** "Applications of generalized additivenmodels and copulas to single-cell RNAseq computational method development: PseudotimeDE and scDesign2"
- **Paivi Pajukanta:** "Integrating single cell omics and deep phenotype data to discover genes underlying cardiometabolic disorders"
- **Hilary Coller:** "Is there a Quiescence Histone Code?"
- **Harold Pimentel:** "Model driven design and analysis of quantitative phenotype screens"
- **David Wong:** "Salivary exRNA for Gastric Cancer Detection"
- **Valerie Arboleda:** "From Bench to Vending Machine: Development and Deployment of Novel Diagnostic testing for SARS-CoV-2 using Genomic Technology"

Fall 2021

Wednesdays, 10/13/21 to 11/17/21 in Boyer Hall 159
12pm: 1st talk
12:30pm: lunch
1pm: 2nd talk
If you would like to present your work, please send an email at **qcboffice@lifesci.ucla.edu**

B.I.G. Summer 2021

June 21 to August 13, 2021

The Bruins in Genomics (B.I.G.) Summer Research Program is an 8-week full-time immersion program for undergraduates interested in learning about Bioinformatics, Computational Biology and Genomics — and developing some of the skill-sets that are critical for 21st century Biological and Biomedical Research, and Precision Medicine.

For more information on B.I.G. Summer, please visit our webpage:
https://qcb.ucla.edu/big-summer/

Some facts about this year program:

- About 435 applications received
- 90 admitted students
- 44 faculty mentors
- 40 direct research mentor
- 36 mentors nominated by their mentees for outstanding mentorship!

5 Themes

2021

Computational Genetics (17)

Lohmueller Lab
Brian Chen
Emma Wade

Garud Lab
Sarah Bald
Anna McDonald

Barber Lab
Marco Chamorro
Linette Tang

Lux Lab
Leon Zha

Papp Lab
Chidera Okenwa

Sankararanam Lab
Meera Chotai
Henry Koelling
Nicholas Liu
Trong Pham
Benjamin Stone

Halperin
Sivan Almogy
Alon Naiberg
Emily Ng

Lange Lab
Daniel Peterson

Epigenomics (19)

Coller Lab
William Sparks

Carey Lab
Kevin Avelar

Pimentel Lab
Arabdha Biswas
Eric Chan

Ernst Lab
Christopher He
Jeremy Wang

Lee Lab
Tyler Katz
Judy Qin

Nishimura Lab
Anne Gleason

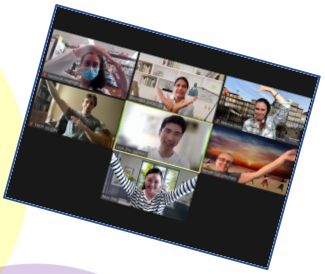
Lusis Lab
Oizoshimoshiofu Dimowo
Maya Jaffe

Ophoff Lab
Aida Razavilar
Jennifer Zhou

Lin Lab
Swalina Bishop
Taylor Griffin

Pellegrini Lab
Sam Herr

Jessica Li Lab
Zhengtong Liu
Huy Nguyen
Lucia Ramirez



Precision Medicine (18)

Hsu Lab
Moshe Ikechukwu
Sehajmeet Sohal

Kim Lab
Samuel Florez
Aaron Wang

Gu Lab
Ahila Moorthy
Hyery Yoo

Zhoul Lab
Jomel Manzano
Colin Small

Loohuis Lab
Julia Bowers
Benjamin Simon

Pasaniuc Lab
Nolan Cole
Hannah Hiraki
Rose Porta

Gandal
Hamza El Osrouti
Sara Timmons

Zaitlen Lab
Defne Ercelen

Yang Lab
Zoeb Jamal
Caden McQuilen

Tward Lab
Nuutti Barron
Connor McKee

Cancer Genomics (18)

Wong Lab
Cara Ly
Ryan Weber
Aaron Wang

Graeber Lab
Madison Dautle
Chidera Emeonye
Nicholas Putney

Boutros Lab
Olivia Fisher
Madison Jordan
Elisabeth Landgren
James Wengler

Arboleda Lab
Samantha Chung
Diego Orellana
Giovani Pimentel-Solorio
Roshni Varma

Moshaverini Lab
Maya Blasingame
Kyla Johnson

Cheng Lab
Oluwapelmi Shodubi
Samuel Florez

Systems Biology (18)

Park Lab
Adriana Payan-Medina
Caleb Watson

Deeds Lab
Melissa Aros
Alexander DiBiasi

Knowles Lab
Chibundu Umunna
Nickie Yang

Meyer Lab
Ashlyn Powell

Yeh Lab
Jonathan Chacon
Casey Huggins
Sheanel Gardner
Cynthia Wang

Hoffmann Lab
Anna Fraser

Venugopal
Itzel Melgoza
Artin Allahverdian

Hu Lab
Abdul-Rakeem Yakubu
Raafae Zaki

Wollman Lab
Jay-Ho Chung
Alvaro Crisanto

Huge thank you to all the mentors for their outstanding job and for making BIG Summer 2021 a real success!!!

Thanks to Madison Jordan! Awarded for best T-shirt design!

Check out presentation videos & abstracts on the QCBio Website at
https://https://qcb.ucla.edu/big-summer/big2021/

A few testimonials...

"I thoroughly enjoyed this experience because of the excellent mentorship that I had."

My mentor has been a fantastic mentor and has truly been invested in my growth as a student and scientist."

"My mentor has been extremely helpful and patient with me throughout the whole program. I have gained a lot of insight and skills that will benefit me not only in academia but in life as well."

"My mentor has been incredibly helpful and dedicated to our team."

"My mentor team has given me a lot of their time and have shared really useful insights. Altogether, they've helped me build real confidence in my ability to do useful research."

"We had a great time working with our Mentor as he made a huge impact on our positive research experience during BIG Summer."

"My mentor has been extremely useful in guiding and mentoring us through this project. He always goes above and beyond in answering our questions and providing support."

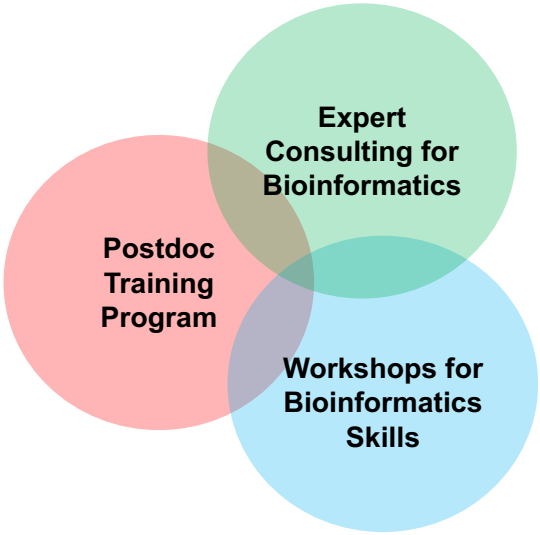
"My mentor has been incredibly supportive in helping us understand our project and continually make progress.

"I thoroughly enjoyed this experience because of the excellent mentorship that I had."

"My mentors allowed me to grow both in knowledge and as a person, and I couldn't be more thankful for all of them!"

The QCBio Collaboratory

The mission of the QCBio Collaboratory is to provide computational research support to projects initiated by experimentalists. This mission pursued at three levels: (i) collaborative support or consulting work, (ii) workshops to convey commonly used bioinformatics skills for the analysis of Next Gen Sequencing data, (iii) the QCB Bioinformatics Core offers a semi-automated workflow for common types of analyses of next generation sequencing data. These activities are supported by the QCB Collaboratory postdoctoral fellows, who are selected from a broad applicant pool for renewable annual appointments.



QCBio Collaboratory Workshops in Spring 2021

Participant Type	# of Participants
Alumni	3
Analyst	2
Assistant Project Scientist	1
Faculty	49
Graduate Student	114
Postdoc	136
Project Scientist	5
Research Assistant	2
Resident	3
Staff	42
Staff Research Associate	5
UCLA Geffen Research Scholar	1
Undergraduate Student	111
Other	3
Total	**477**

2021 Publications by QCBio Collaboratory Fellows

- **Don Vaugh**: https://www.sciencedirect.com/science/article/pii/S0006899320305618?via%3Dihub
- **Daniel Sung-Min Ha**: https://academic.oup.com/jac/advance-article/doi/10.1093/jac/dkab262/6330665
- **Karolina Kaczor-Urbanowicz/Matteo Pellegrini**: https://www.nature.com/articles/s41598-020-80063-0

The Collaboratory Workshops for Fall 2021

- Intro to Unix
- Intro to Python
- Using NGS Analysis Tools
- Advanced Python
- Intro to MATLAB
- Machine Learning w/ Python
- Intro to R
- Library Prep for NGS
- Intro to Cytoscape
- Bacterial Genomics
- Single-Cell RNA-seq
- Mathematical Modeling
- Metagenomics Analysis
- Intro to Modern Statistics
- BS-seq DNA Methylation
- RNA-seq I Analysis
- RNA-seq II Analysis
- Variant Calling with GATK
- Genetics Analysis (VCF-Plink)
- Galaxy for NGS

Interested? Check this out!
https://qcb.ucla.edu/collaboratory/schedule-of-workshops/

Introducing new Collaboratory Fellows:

Arjun Bhattacharya

Dr. Arjun Bhattacharya is a Postdoctoral Fellow in the Department of Pathology and Laboratory Medicine with Prof. Bogdan Pasaniuc and Prof. Michael Gandal. Arjun's research focuses on integrative methods for statistical genetics and genetic epidemiology to study complex traits, mainly cancer, neuropsychiatric disorders, and neonatal traits. He received his BS in Biology and Statistics at the University of North Carolina at Chapel Hill and a PhD in Biostatistics at the Gillings School of Global Public Health at the University of North Carolina at Chapel Hill.

Maria Izabel Cavassim

Dr. Cavassim Alves is a Postdoctoral Fellow at the Lohmueller lab in the Department of Ecology and Evolutionary Biology. Her interests are in using comparative genomics to deepen our understanding of the evolutionary mechanisms that give rise to and maintain genetic variation. Currently, Izabel is investigating the impact of dominance on the distribution of fitness effects in human populations. Dr. Cavassim Alves earned her Bachelor in Agriculture Engineering from University of Sao Paulo (Brazil), Masters and Ph.D. in Bioinformatics from Aarhus University (Denmark).

Giorgia Del Vecchio

Dr. Del Vecchio is currently a postdoctoral fellow in Dr. Sherin U. Devaskar laboratory in the Department of Pediatrics, Devid Geffen School of Medicine at UCLA. Before joining UCLA, she earned a PhD in Genetics and Molecular Biology from Sapienza University of Rome, working on the microRNA-target interaction mechanism and demonstrating how miR-200a together with the binding protein HuR could have a stabilizing effect on their target c-Jun. Her current research focus on circulating cell-free nucleic acids isolated from maternal samples (plasma and urine), trying to understand their function and diagnostic potential early in pregnancy.

Amandine Gamble

Dr. Gamble is a postdoc in the Lloyd-Smith lab in the Department of Ecology and Evolutionary Biology. Her research focuses on the biological mechanisms driving infectious disease dynamics, from the cellular to the species community scale. In particular, she develops mechanistic models aiming at identifying the molecular and ecological drivers of pathogen transmission and virulence across animal species from laboratory and field data. Dr. Gamble earned her D.VM. from Alfort National Veterinary School, her M.S. in Ecophysiology and Animal Behavior from Strasbourg University, and her Ph.D. in Ecology and Population Biology from Montpellier University in France. Outside the lab, Amandine enjoys sharing her research with the public and exploring the Los Angeles area through photography and food tasting.

Wenbin Guo

Wenbin came from biological and computer science backgrounds and is currently a Ph.D. student in the Bioinformatics IDP at UCLA. His current research focuses on using methylation and transcriptomic data in disease status prediction and biomarker discovery. He is experienced in building bioinformatics pipelines, analyzing high-throughput (genetics/epigenetics/transcriptomics) data as well as applying machine learning methods to biological problems. Aside from research, Wenbin enjoys hiking, sightseeing, and playing sports with friends.

Sergei Knyazev

Dr. Knyazev is a postdoctoral fellow from Dr. Pasaniuc's Lab at UCLA. Before joining UCLA, Sergey developed, bench-marked, and applied NGS data processing software for viral and metagenomic data at Dr. Zelikovsky's lab at GSU and Dr. Swithzer's lab at the Centers for Disease Control and Prevention. He received M.S. in Applied Mathematics at Saint Petersburg Academic University and Ph.D. in Computer Science at Georgia State University (GSU).

Seyoon Ko

Dr. Seyoon Ko is a Postdoctoral Fellow at Hua Zhou's laboratory in the Department of Biostatistics. Dr. Ko's research interests include large-scale computational methods in biostatistics and bioinformatics using parallel and distributed computing. His current projects include developing scalable software for genome-wide associational study modeling within-subject variability and identifying ancestry-informative markers at the biobank scale. He earned a Ph.D. degree in Statistics from Seoul National University in South Korea, as well as a M.S. degree in Computational Sciences and a B.S. degree in Physics, Mathematical Sciences, and Computational Science.

New Faculty members: Welcome!

Amjad Askary

Assistant Professor, Department of Molecular, Cell and Developmental Biology

Dr. Amjad Askary is an Assistant Professor at UCLA Department of Molecular, Cell and Developmental Biology. He studies cell fate specification in the mammalian retina using technologies that he has developed for synthetic recording and in situ readout of lineage and cellular history. Amjad received his undergraduate and Master's degree in Biotechnology and Bioprocess Engineering from University of Tehran in Iran and his PhD in Genetics, Molecular and Cellular Biology from University of Southern California. Most recently, he completed his postdoctoral fellowship, working with Dr. Michael Elowitz at Caltech.

Michael Wells

Assistant Professor, Department of Human Genetics

Michael F. Wells, PhD is an Assistant Professor in the UCLA Department of Human Genetics. He earned a B.S. in Biological Sciences from the University of Notre Dame in 2008, and a PhD in Neurobiology from Duke University in 2015 under the guidance of Dr. Guoping Feng. In 2021, he completed his postdoctoral training in the laboratory of Dr. Kevin Eggan at Harvard University and the Broad Institute. Michael's research focuses on discovering the disease mechanisms underlying neurodevelopmental disorders of genetic and viral origin using human stem cell-derived neural models and cerebral organoids. His work has been published in such high-impact journals as *Nature*, *Cell*, *Neuron*, and *Cell Stem Cell*, and has been funded by a F31 Predoctoral Fellowship, a K99/R00 Pathway to Independence award, and a Burroughs Wellcome Fund Postdoctoral Enrichment Program award. Outside of the laboratory, Michael serves as the creator and co-director of the COVID-19 National Scientist Volunteer Database (covid19sci.org), which is a resource for health officials and decision-makers around the country looking to solve COVID-19-related problems. In addition, he is the Chair of the Society for Neuroscience (SfN) Trainee Advisory Committee, has previously participated in the SfN Early Career Policy Ambassador program. For more information, please visit MichaelFWellsPhD.com.

Jennifer Wilson

Assistant Professor, Department of Bioengineering

Dr. Jennifer L. Wilson is an Assistant Professor at the UCLA Department of Bioengineering. In the Computational Systems Pharmacology Lab, Dr. Wilson studies how proteins downstream of drug targets affect drug-induced phenotypes - the ability to mitigate disease or cause side effects. The lab aims to develop engineering principles for rationally designing novel drug targets by accounting for downstream protein effects. Prior to coming to UCLA, Dr. Wilson earned a B.S. in Biomedical Engineering at the University of Virginia, she was an NSF Graduate Fellow with Doug Lauffenburger at M.I.T., and recently completed a CERSI fellowship in Regulatory Science (with Russ Altman) and SPARK fellowship (with Kevin Grimes) at Stanford University.

Welcome new Graduate Students!

Bioinformatics


Christine Boulier


Michael Cheng
(BIG Summer 2020 Alumnus!)


Aditya Gorla


Maria Flores


Chanyue “Charlotte” Hu


Alexander Flynn-Carroll


Terence Li


Jieun “Grace” Oh


Timothy Hamilton


Jack Dodson


Francisco Musella


Ryo Yamamoto


Aditya Pimplaskar


Sandra Lapinska
(BIG Summer 2020 Alumna!)


Helena Winata

Biomathematics


Sandy Kim
(BIG Summer 2019 Alumna!)


Siqi Fang

Medical Informatics


Kaiyang “Victor” Cheng


Elizabeth Hutchins


Selina Wu


Saarang Panchavati

Genetics & Genomics


Jasmine Ameraseke


Chloe Hanson

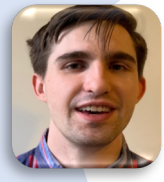

Laila Sathe


Patrick Liu


Carlos Olivares


Mara Pleasure


Aina Martinez


Michael Wasney


Nathan Siu
BIG Summer 2020 Alumnus!


Brandon Tsai

QCBIO Retreat 2021

We just wrapped up an exciting event!

It was so nice to see everyone in person again!!!

Highlights of our annual Retreat this year:

- 163 registrations
- 125 in person attendees/20 remote attendees
- 11 status reports by program directors
- 3 keynote speakers
- 6 student presentations
- 31 poster presentations
- Presentation by QCBio-EDGE (Empowering Diversity and Growth in Education) followed by award ceremony

Thank you to:

. **Leah Briscoe**, Bioinformatics Phd student (Garud lab)
. **Christa Caggiano**, Bioinformatics PhD student, Zaitlen lab
. **Karthik Gangavarapu**, Postdoc, Suchard lab
. **Farnaz Mohammadi**, Bioengineering PhD student, Meyer lab
. **Sarah Spendlove**, Bioinformatics PhD student, Arboleda lab
. **Mingtao Xia**, Mathematics PhD student, Chou lab

For their outstanding presentations!

- A big thank you to those who participated in the T-shirt contest and won a $75 Amazon gift card
  Congratulations to
- **Kim Paraiso** who the best Retreat 2021 T-shirt design!

Congratulations to:
. Lorenzo Bonsigna (Alber lab)
. Ting Fu (Xiao Lab)
. Eric Heinrichs (Novich lab)
. Cyrillus Tan (Meyer lab)
. Dongyuan Song (Li JJ lab)
For top 5 poster presentations!

Thank you for joining us for the QCBio Retreat. If you have missed the event, please visit our website to listen to some of the recordings or view our pictures and program: https://qcb.ucla.edu/events-seminars/retreat/2021-retreat-gallery/

Congratulations to:

- Catera Wilder
- Stefanie Luecke
- Apeksha Singh
- Allison Schiffman
- Alma Munoz

For their initiating and leading efforts in Diversity and Equity:
https://qcb.ucla.edu/diversity-equity-inclusion/