

# Alan P. Boyle

## Education

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|-----------|--|
| 2005–2009 | <b>Doctor of Philosophy</b> , Computational Biology and Bioinformatics<br>Duke University, Durham, NC  |
| 2001–2005 | <b>Bachelor of Science</b> , <i>summa cum laude</i> , Biochemistry and Molecular Biology<br><b>Bachelor of Science</b> , <i>summa cum laude</i> , Computer Science<br>Mississippi State University, Starkville, MS |

## Academic Appointments

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|--------------|---|
| 2020–present | <b>Associate Professor with tenure</b> , Department of Computational Medicine & Bioinformatics<br><b>Associate Professor</b> , Department of Human Genetics |
| 2021–present | <b>Affiliate</b> , Michigan Neuroscience Institute  |
| 2020–present | <b>Affiliate Member</b> , Rogel Cancer Center   |
| 2017–present | <b>Member</b> , Cellular and Molecular Biology Program  |
| 2016–present | <b>Member</b> , Center for RNA Biomedicine  |
| 2015–present | <b>Member</b> , Genome Science Training Program (GSTP)<br><b>Member</b> , Michigan Predoctoral Training Program in Genetics (GTP)                           |
| 2014–present | <b>Member</b> , Program in Biomedical Sciences<br><b>Member</b> , Bioinformatics Training Program   |
| 2015–2020    | <b>Assistant Professor</b> , Department of Human Genetics   |
| 2014–2020    | <b>Assistant Professor</b> , Department of Computational Medicine & Bioinformatics<br>University of Michigan, Ann Arbor, MI                                 |
| 2010–2014    | <b>Postdoctoral Scholar</b> , Genetics<br>Stanford University, Stanford, CA; Advisor: Dr. Michael Snyder  |
| Spring 2010  | <b>Postdoctoral Associate</b> , Computational Biology<br>Duke University, Durham, NC; Advisor: Dr. Terrence S. Furey  |

## Scholarships, Fellowships, and Honors

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|-------------|---|
| 2019        | Endowment for the Basic Sciences Teaching Award   |
| 2018        | First Place in CAGI5 Regulation Saturation Challenge                                    |
| 2017        | NSF CAREER Award  |
| 2016        | Institutional nominee for W.M. Keck Foundation Medical Science Research Program         |
| 2016        | Institutional nominee for Searle Scholar Award  |
| 2015–2017   | Alfred P. Sloan Foundation Fellowship in Computational & Evolutionary Molecular Biology |
| 2013–2014   | NIH Pathway to Independence Award (K99/R00) [1K99HG007356-01]                           |
| 2012        | AAAS/Science Program for Excellence in Science  |
| 2005–2008   | NSF Graduate Research Fellowship  |
| 2005–2009   | James B. Duke Fellowship  |
| Summer 2004 | Mayo Clinic Summer Undergraduate Research Fellow  |
| 2003        | Barry M. Goldwater Memorial Scholarship   |
| Summer 2003 | The Institute for Genomic Research (TIGR) Summer Fellow                                 |
| 2001        | Robert C. Byrd Honors Scholarship   |
| 2001        | Mississippi State University Presidential Scholarship                                   |
| 2001        | National Merit Scholarship  |

## Grant Support

### Active

|           |   |                                 |
|-----------|---|---------------------------------|
| 2017–2025 | U24 HG009293<br>NIH/NHGRI<br>RegulomeDB: A Resource for the Human Regulome<br>This project seeks to expand and support a RegulomeDB, a database for prioritizing and predicting functional variants in the human genome.  | (Multi-PI: Boyle, Cherry)       |
| 2020–2022 | R21 HG011493<br>NIH/NHGRI<br>New technologies for accurate capture and sequencing of repeat-associated regions<br>This project seeks to map mobile elements in a trio of cell lines and develop technologies for improving this mapping.  | (Multi-PI: Boyle, Mills)        |
| 2022–2025 | R21 CA2578964<br>NIH/NCI<br>High-throughput inverted reporter assay for characterization of silencers and enhancer blockers<br>This project seeks to develop tools for the study of negative regulatory elements in cancer development.   | (PI: Boyle)                     |
| 2021–2026 | U01 HG011952<br>NIH/NHGRI<br>Predicting the impact of genomic variation on cellular states<br>This project seeks to develop tools for interpretation of genomic variation on cellular state through modeling single cell data as part of the IGVF consortium.   | (PI: Boyle)                     |
| 2021–2022 | Cancer Center Discovery<br>University of Michigan<br>Direct capture of complete HPV integration sites using long-read sequencing<br>This project seeks to develop methods to capture of complete HPV integration events in the human genome.  | (PI: Boyle)                     |
| 2022      | NVIDIA GPU Grant<br>NVIDIA Corporation  | (PI: Boyle)                     |
| 2018–2023 | R01 HD093570<br>NIH/NICHHD<br>Genetic Diagnosis of Neurodevelopmental Disorders in India<br>This study will establish whole-exome sequencing to study mendelian genetic disorders at the All India Institute of Medical Sciences.   | (PI: Bielas; Co-I with Effort)  |
| 2020–2023 | W81XWH2010336<br>DoD/Army<br>Understanding & Enhancing the Regenerative Capacity of Skeletal Muscle to Trauma by Targeting Muscle-Nerve Synergy<br>This project seeks to study the single cell chromatin and RNA landscape in skeletal muscle repair.   | (PI: Aguilar; Co-I with Effort) |
| 2021–2026 | F32 HL153799<br>NIH/NHLBI<br>Predisposition for Lung Injury in Sepsis Survival<br>The goal of this project is to understand the biological mechanisms predisposing to these complications in order to prevent and treat them.   | (PI: Denstaedt; Consultant)     |
| 2021–2026 | R01 HD104680<br>NIH/NICHHD<br>Sperm Chromatin: Implications on organismal development and fertility<br>This project seeks to explore protamine chromatin structure in mouse sperm.  | (PI: Hammoud; Co-I with Effort) |
| 2021–2026 | R01 NS122165<br>NIH/NINDS<br>Uncover the role of H3.3-G343R mutation in shaping the DNA damage response, anti-tumor immunity and mechanisms of resistance in glioma<br>This project seeks to study pediatric high-grade gliomas with H3.3-G343R, ATRX, and TP53 inactivating mutations to understand the impact of H3.3-G343R on the tumor immune microenvironment. | (PI: Castro; Co-I with Effort)  |

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| 2022–2024 | Michigan Alzheimer's Disease Center Developmental Project<br>University of Michigan<br>Explore the functional impact of transposable elements in Alzheimer's disease and related dementias<br>This project seeks to explore the connection between the somatic transposable elements in the human genome and Alzheimer's disease and related dementias. | (PI: Zhou; Consultant) |
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**Completed**

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| 2013–2017 | R00 HG007356 Pathway to Independence Award (K99/R00)<br>NIH/NHGRI<br>Global Discovery and Validation of Functional Regulatory Elements<br>This project seeks to extend current assays demonstrating function of genomic regions into an equivalent genome-wide assay.   | (PI: Boyle)                      |
| 2015–2017 | FG-2015-65465<br>Alfred P. Sloan Foundation<br>Fellowship in Computational & Evolutionary Molecular Biology   | (PI: Boyle)                      |
| 2016–2020 | R01 HL130705<br>NIH/NHLBI<br>Large-scale human genetics to understand molecular mechanisms of atrial fibrillation and related traits<br>This project seeks to provide new insights into atrial fibrillation mechanisms through whole-genome screening.  | (PI: Willer; Co-I with Effort)   |
| 2017–2018 | Eleanor and Larry Jackier U-M/Technion and Weizmann Collaborative Research Grant<br>Michigan - Israel Partnership for Research & Education<br>Identifying novel disease related mutations in the genomic environments around Transcription Factor binding sites<br>The goal of this project is to identify variants in the proximity of TF binding sites that have an indirect effect on their binding. | (co-PI: Boyle, Mandel-Gutfreund) |
| 2017–2024 | R35 HL135824<br>NIH/NHLBI<br>Using Genetics to Inform Mechanism of Cardiovascular Disease<br>The goal of this project is to uncover novel genetic discoveries and biological mechanisms underlying association with devastating cardiovascular diseases.  | (PI: Willer; Co-I with Effort)   |
| 2019      | NVIDIA GPU Grant<br>NVIDIA Corporation  | (PI: Boyle)                      |
| 2019–2021 | Precision Health Investigators Award<br>University of Michigan<br>Short Tandem repeats in precision health and human disease<br>The goal of this project is to develop any assay to measure STRs in human genomes and develop bioinformatic tools to predict STR expansions from genotypes.   | (co-PI: Todd, Boyle, Mills)      |
| 2017–2022 | DBI-1651614<br>NSF/BIO/DBI<br>CAREER: Conservation of cohesin-containing cis regulatory modules in the human and mouse lineages<br>The goal of this project is the study of the turnover of cohesin binding sites in the human and mouse genomes.   | (PI: Boyle)                      |

**Professional Service****Service**

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|--------------|---|
| 2022–current | University of Michigan Biomedical Research Council (BMRC) (Standing Member) |
| 2020–current | DHG M.S. Admissions Committee   |
| 2018–current | DCM&B Diversity, Equity, & Inclusion Committee [Ally/Chair 2018–2020]       |

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| 2018–current | Lab Safety Liaison for DCM&B   |
| 2017–current | DCM&B Preliminary Exam Abstract Review Committee (PARC) [Chair 2018–current] |
| 2019–2020    | DHG Ph.D. Admissions Committee   |
| 2017–2020    | DHG Faculty Recruitment and Promotions Committee                             |
| 2016–2020    | DCM&B Seminar Series Committee [Chair]                                       |
| 2018–2019    | Cellular and Molecular Biology Admissions Committee                          |
| 2017–2019    | EBS Faculty IT Committee   |
| 2016–2019    | DCM&B Faculty Recruitment Committee  |
| 2015–2018    | DCM&B Admissions Committee   |
| 2015–2017    | DHG Computational Support Committee  |
| 2015–2016    | DCM&B Retreat Planning Committee Chair (including 1st annual)                |
| 2014         | <i>Ad hoc</i> admissions reviewer, University of Michigan DCM&B              |
| 2008–2009    | Duke Computational Biology & Bioinformatics student committee                |

## Memberships

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|--------------|--|
| 2018–current | Member, American Society of Human Genetics (ASHG)                  |
| 2013–current | Member, International Society for Computational Biology (ISCB)     |
| 2012–current | Member, American Association for the Advancement of Science (AAAS) |
| 2005–current | Member, Gamma Sigma Delta Agricultural Honor Society               |

## Manuscript Reviewing Activity

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|--------------|---|
| Since 2009   | <i>Ad hoc</i> reviewer ( <a href="#">&gt;100 verified reviews</a> ) for the journals: <i>Science</i> , <i>Nature Genetics</i> , <i>Genome Research</i> , <i>Genome Biology</i> , <i>Nature Neuroscience</i> , <i>Nature Communications</i> , <i>Nature Protocols</i> , <i>Bioinformatics</i> , <i>Nucleic Acids Research</i> , <i>BMC Biology</i> , <i>BMC Bioinformatics</i> , <i>PLOS Computational Biology</i> , <i>Oncotarget</i> , <i>Scientific Reports</i> , <i>Atherosclerosis</i> , <i>BioEssays</i> , <i>Gene</i> |
| 2019–current | Editorial Board, PLoS ONE   |
| 2019–current | Review Editor, Bioinformatics and Computational Biology for Frontiers in Genetics   |
| 2019–current | Review Editor, Bioinformatics and Computational Biology for Frontiers in Plant Science  |
| 2019–current | Review Editor, Bioinformatics and Computational Biology for Frontiers in Bioengineering and Biotechnology   |
| 2019         | Program Committee, Studies of Phenotypes and Clinical Applications, ISMB/ECCB   |
| 2015–2018    | Program Committee, Great Lakes Bioinformatics and Canadian Computational Biology Conference (GLBIO/CCBC)  |
| 2015–2016    | Program Committee, Algorithms for Computational Biology (ALCOB)   |
| 2013–current | Program Committee, Gene Regulation and Transcriptomics, ISMB/ECCB   |
| 2012–2015    | DNA Day Essay Contest Detailed Review Judge for ASHG  |
| 2012         | Distinguished contributor as a leading reviewer for the journal <i>Bioinformatics</i>   |

## Grant Reviewing Activity

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|-----------|---|
| 2020      | NIH/NIMH Study Section ZMH1 ERB-C (08) - Fine-Mapping Genome-Wide Associated Loci to Identify Proximate Causal Mechanisms of Serious Mental Illness (Ad Hoc)                |
| 2019      | NIH/NIMH Study Section ZMH1 ERB-C (01) - PsychENCODE: Non-Coding Functional Elements in the Human Brain and Their Role in the Development of Psychiatric Disorders (Ad Hoc) |
| 2018–2019 | University of Michigan internal review for Searle Scholars Program  |
| 2015      | UK Medical Research Council (RCUK MRC) - Methodology Research Panel (Ad Hoc)  |
| 2015      | UK Biotechnology and Biological Sciences Research Council (RCUK BBSRC) (Ad Hoc)   |
| 2015      | Michigan Institute for Clinical & Health Research (MICHR) Postdoctoral Translational Scholars Program (Ad Hoc)  |

## Teaching and Mentorship

### Teaching (F = Fall Term, W = Winter Term, S = Summer Term)

|                                   |   |
|-----------------------------------|---|
| W19, W20, W21, W22                | Bioinformatics Concepts and Algorithms (BIOINF 529) [Course Director]         |
| F15, F16, F17, F18, F19, F20, F21 | Gene Structure and Regulation (HUMGEN 541) [3 lectures + 2 discussions / yr.] |
| F21, W22                          | Genetics Student Seminar (HUMGEN 821/822) [Mentor]                            |

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|---|---|
| F17, F18                                | Experimental Genetics Systems (HUMGEN 632) [Course Director]                                    |
| F15, W16, F16,<br>W17, F17, W18,<br>F18 | Bioinformatics Journal Club (BIOINF 602/603) [Course Director F18]                              |
| S17, S18                                | Introduction to Biocomputing Bootcamp (BIOSTAT/BIOINF/HUMGEN 606) [2 full days / yr.]           |
| F15, F16, F17                           | Introduction to Bioinformatics & Computational Biology (BIOINF 527) [2 lectures + 3 labs / yr.] |
| S15, S16, S17                           | Basic Biology for Graduate Students with Quantitative Training (BIOINF 523) [2 lectures / yr.]  |
| F03                                     | Lab TA for Isotopes Tech I (MS. State, BCH 4414)  |

### Guest Lectures / Panels

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| 2018–2019 | Lecturer, REU Site: Mathematical and Theoretical Biology Institute (MTBI), Arizona State University (NSF1757968) [2 days] |
| 2017      | Panel member, U. Michigan “New Faculty Orientation to Corporate & Foundation Relations” [ 70 attendees]                   |
| 2016      | Experimental Genetics Systems (HUMGEN 632) [1 discussion]   |
| 2014      | Panel member, BIOINF 527 “Challenges in Biology, Biomedicine, Data & Analysis”  |
| 2010      | Co-taught Cold Spring Harbor Systems Biology Pre-meeting Workshop   |
| 2009      | Duke student panelist for “How to prepare for and get into graduate school”   |
| 2008      | Taught Duke mini-course on Genome Browsers & Databases  |

### Mentorship

#### Graduate Students

|              |   |
|--------------|---|
| 2021–current | Kinsey Van Deynze (Ph.D. Student, Bioinformatics, University of Michigan)<br><i>NIH Genome Science Training Program (T32)</i>   |
| 2020–current | Andrea Valenzuela (Ph.D. Student, Chemical Biology, University of Michigan)<br><i>NIH Cellular Biotechnology Training Program (T32)</i>   |
| 2020–current | Breanna McBean (Ph.D. Student, Human Genetics, University of Michigan)<br><i>Joint M.S. in Bioinformatics, University of Michigan</i><br><i>NIH Genome Science Training Program (T32)</i><br><i>Rackham Graduate Student Research Grant (pre-candidate)</i>   |
| 2019–2020    | Monica Holmes (M.S. Student, Bioinformatics, University of Michigan)  |
| 2020–current | Camille Mumm (Ph.D. Student, Human Genetics, University of Michigan)<br><i>Joint M.S. in Bioinformatics, University of Michigan</i><br><i>NIH Genome Science Training Program (T32)</i><br><i>Rackham Graduate Student Research Grant (pre-candidate)</i>   |
| 2018–current | Bradley Crone (Ph.D. Student, Bioinformatics, University of Michigan)   |
| 2017–current | Melissa Englund (Ph.D. Student, Human Genetics, University of Michigan)<br><i>NIH Human Genetics Training Program (T32)</i><br><i>Rackham Graduate Student Research Grant (candidate)</i>   |
| 2018–current | Samuel Zhao (Ph.D. Student, Bioinformatics, University of Michigan)   |
| 2017–2018    | Samuel Zhao (M.S. Student, Bioinformatics, University of Michigan)<br><i>Rackham Graduate Student Research Grant (pre-candidate)</i><br><i>Rackham Graduate Student Research Grant (candidate)</i>  |
| 2016–2018    | Haley Amemiya (Ph.D. Student, Cellular and Molecular Biology, University of Michigan)<br><i>Joint M.S. in Bioinformatics, University of Michigan</i><br><i>NIH Cellular &amp; Molecular Biology Training Program (T32)</i><br><i>NIH Cellular Biotechnology Training Program (T32) (Declined)</i><br><i>PIBS Excellence in Service Award</i><br><i>Rackham Graduate Student Research Grant (pre-candidate)</i><br><i>Rackham Graduate Student Research Grant (candidate)</i><br><i>Maas Professional Development Award</i><br><i>Rackham Graduate School Scholar-Activist Award</i> |
| 2016–2020    | Shriya Sethuraman (Ph.D. Student, Bioinformatics, University of Michigan)   |

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| 2016–current | Christopher Castro (Ph.D. Student, Bioinformatics, University of Michigan)<br><i>NIH Bioinformatics Training Program (T32)</i><br><i>Rackham Merit Fellow</i><br><i>Rackham Graduate Student Research Grant (pre-candidate)</i><br><i>Global Research Engagement Opportunity Fellowship</i>                             |
| 2017–2022    | Ningxin Ouyang (Ph.D. Student, Bioinformatics, University of Michigan)  |
| 2015–2017    | Ningxin Ouyang (M.S. Student, Bioinformatics, University of Michigan)<br><i>Rackham Graduate Student Research Grant (candidate)</i>   |
| 2016–2021    | Shengcheng Dong (Ph.D. Student, Bioinformatics, University of Michigan)<br><i>Rackham Graduate Student Research Grant (candidate)</i>   |
| 2015–2021    | Torrin McDonald (Ph.D. Student, Human Genetics, University of Michigan)<br><i>NIH Human Genetics Training Program (T32)</i><br><i>Rackham Graduate Student Research Grant (pre-candidate)</i><br><i>Rackham Graduate Student Research Grant (candidate)</i>   |
| 2015–2017    | Greg Farnum (Ph.D. Student, Cellular and Molecular Biology, University of Michigan)   |
| 2015–2020    | Sierra Nishizaki (Ph.D. Student, Human Genetics, University of Michigan)<br><i>Joint M.S. in Bioinformatics, University of Michigan</i><br><i>NIH Genome Science Training Program (T32)</i><br><i>Rackham Merit Fellow</i><br><i>Rackham Summer Award</i><br><i>Rackham Graduate Student Research Grant (candidate)</i> |

### Additional Graduate Rotation Students

|      |   |
|------|---|
| 2022 | Mahnoor Gondal (Rotation Student, Bioinformatics, University of Michigan)                     |
| 2022 | Xin Li (Rotation Student, Biological Chemistry, University of Michigan)                       |
| 2022 | Bohan Chen (Rotation Student, Cell and Developmental Biology, University of Michigan)         |
| 2021 | Amelia Lauth (Rotation Student, Cellular and Molecular Biology, University of Michigan)       |
| 2019 | Margarita Brovkina (Rotation Student, Cellular and Molecular Biology, University of Michigan) |
| 2018 | Steve Ho (Rotation Student, Human Genetics, University of Michigan)                           |
| 2018 | Matthew Pun (Rotation Student, Medical Science Training Program, University of Michigan)      |
| 2017 | Amanda Moccia (Rotation Student, Human Genetics, University of Michigan)                      |
| 2017 | Stephen Carney (Rotation Student, Human Genetics, University of Michigan)                     |
| 2016 | Tingyang Li (Rotation Student, Bioinformatics, University of Michigan)                        |

### Postdoctoral Fellows

|           |  |
|-----------|--|
| 2021–2022 | Shengcheng Dong (University of Michigan) |
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### Non-student Lab Volunteers

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|-----------|---|
| 2019–2021 | Greg Farnum (University of Michigan)            |
| 2018–2019 | Monica Holmes (Postbac, University of Michigan) |

### Undergraduate and High School Students

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|--------------|--|
| 2021–current | Preston Parana (Undergraduate, UROP Molecular, Cellular, and Developmental Biology, University of Michigan)<br><i>UROP Blue Ribbon Award</i> |
| 2021–2022    | Julia Tweadey (Undergraduate, LSA Honors Program, Life Science Informatics, University of Michigan)  |
| 2021         | Aryn Booker (Undergraduate, UROP Molecular, Cellular, and Developmental Biology, University of Michigan)<br><i>UROP Blue Ribbon Award</i>    |
| 2020         | Marcela Alcaide Aligio (Undergraduate, SROP, Hunter College CUNY)  |
| 2019–2020    | David Wang (Undergraduate, UROP Computer Science, University of Michigan)  |

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| 2019–2020 | Jack Lu (Undergraduate, UROP Computer Science, University of Michigan)                         |
| 2019–2020 | Diana Davis (Undergraduate, Neuroscience and German, University of Michigan)                   |
| 2019      | Sheila Rasouli (Undergraduate, Neuroscience, University of Toronto)                            |
| 2019      | Vibhasri Davuluri (High School, Girls Who Code Summer Intern)                                  |
| 2016–2019 | Cody Morterud (Undergraduate, UROP Computer Science / Honors Capstone, University of Michigan) |
| 2016–2017 | Colten Williams (Undergraduate, UROP Computer Science, University of Michigan)                 |
| 2016–2017 | Courtney Asman (Undergraduate, Neuroscience, University of Michigan)                           |
| 2014–2017 | Maxwell Spadafore (Undergraduate, LS&A Honors Informatics, University of Michigan)             |
| 2013–2014 | Natalie Ng (High School, Stanford Institutes of Medicine Summer Research)                      |
| 2013–2014 | Dana Wyman (Undergraduate, Biology, Stanford University)                                       |
| 2013      | Justin Young (High School, Stanford Institutes of Medicine Summer Research)                    |
| 2012      | Melanie Connick (Undergraduate, Biology, University of New Mexico)                             |
| 2012      | Edward Dai (Undergraduate, Computer Science, Stanford University)                              |

### Doctoral Thesis Committees

|              |  |
|--------------|--|
| 2022–current | Franco Tavella (Biophysics, University of Michigan, Committee Member)  |
| 2021–current | Zijun Gao (Bioinformatics, University of Michigan, Committee Member)   |
| 2021–current | Kuan-Han Wu (Bioinformatics, University of Michigan, Committee Member)   |
| 2021–current | Wenjin Gu (Bioinformatics, University of Michigan, Committee Member)   |
| 2021–current | Kinsey Van Deynze (Bioinformatics, University of Michigan, Chair)  |
| 2021–current | Mashiat Rabbani (Human Genetics, University of Michigan, Committee Member)   |
| 2020–current | Andrea Valenzuela (Chemical Biology, University of Michigan, co-Chair)   |
| 2020–current | Breanna McBean (Human Genetics, University of Michigan, co-Chair)  |
| 2020–current | Ashley Melnick (Cellular and Molecular Biology, University of Michigan, Committee Member)  |
| 2020–current | Camille Mumm (Human Genetics, University of Michigan, Chair)   |
| 2019–current | Benjamin Yang (Biomedical Engineering, University of Michigan, Committee Member)   |
| 2018–current | Christine Ziegler (Biological Chemistry, University of Michigan, Committee Member)   |
| 2018–current | Stephen Carney (Cancer Biology, University of Michigan, Committee Member)  |
| 2018–current | Marcus Sherman (Bioinformatics, University of Michigan, Committee Member)  |
| 2018–current | Rucheng Diao (Bioinformatics, University of Michigan, Committee Member)  |
| 2018–current | Samuel Zhao (Bioinformatics, University of Michigan, Chair)  |
| 2018–current | Bradley Crone (Bioinformatics, University of Michigan, Chair)  |
| 2017–current | Melissa Englund (Human Genetics, University of Michigan, Chair)  |
| 2016–current | Christopher Castro (Bioinformatics, University of Michigan, Chair)   |
| 2017–2022    | Amanda Moccia (Human Genetics, University of Michigan, Committee Member)<br><i>Investigation of Developmental Disorders: Genetic Discovery and Functional Validation</i>   |
| 2017–2022    | Ningxin Ouyang (Bioinformatics, University of Michigan, Chair)<br><i>Deciphering Transcriptional Regulatory Circuits: Transcription Factor Binding and Regulatory Variants Identification</i>  |
| 2015–2021    | Torrin McDonald (Human Genetics, University of Michigan, Chair)<br><i>Leveraging New Technologies to Explore Regulatory and Structural Elements of the Human Genome</i>  |
| 2018–2021    | Heming Yao (Bioinformatics, University of Michigan, Committee Member)<br><i>Machine Learning and Image Processing for Clinical Outcome Prediction: Applications in Medical Data from Patients with Traumatic Brain Injury, Ulcerative Colitis, and Heart Failure</i> |
| 2016–2021    | Mohd Hafiz Bin Mohd Rothi (Molecular, Cellular, and Developmental Biology, University of Michigan, Committee Member)<br><i>Control of Chromatin by RNA-mediated Transcriptional Silencing</i>  |
| 2016–2021    | Shengcheng Dong (Bioinformatics, University of Michigan, Chair)<br><i>Computational Methods to Identify Regulatory Variants in the Non-coding Regions of the Human Genome</i>  |
| 2017–2021    | Steven Romanelli (Molecular & Integrative Physiology, University of Michigan, Committee Member)<br><i>Viral CRISPR/Cas9 Gene Transfer for Somatic Knockout in Brown Adipose Tissue</i>   |
| 2018–2021    | Negar Farzaneh (Bioinformatics, University of Michigan, Committee Member)<br><i>Automated Decision Support System for Traumatic Injuries</i>   |

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| 2016–2020 | Shriya Sethuraman (Bioinformatics, University of Michigan, co-Chair)<br><i>Genome-wide Identification of Non-coding Transcription by RNA Polymerase V and Its Involvement in Transcriptional Gene Silencing</i>                                      |
| 2015–2020 | Sierra Nishizaki (Human Genetics, University of Michigan, Chair)<br><i>Decoding the Non-coding Genome: Novel Technologies for the Characterization of Non-coding Elements and Variation</i>  |
| 2017–2020 | Christopher Lee (Biostatistics, University of Michigan, Committee Member)<br><i>Improvements and Developments in Gene Regulation and Single-Cell Gene Expression Data Analysis</i>   |
| 2015–2018 | Ari Allyn-Feuer (Bioinformatics, University of Michigan, Committee Member)<br><i>The Pharmacoepigenomics Informatics Pipeline and H-GREEN Hi-C Compiler: Discovering Pharmacogenomic Variants and Pathways with the Epigenome and Spatial Genome</i> |
| 2015–2017 | Raymond Cavalcante (Bioinformatics, University of Michigan, Committee Member)<br><i>Beyond the Transcriptome: Facilitating Interpretation of Epigenomics and Metabolomics Data</i>   |
| 2015–2017 | Zhengting Zou (Bioinformatics, University of Michigan, Committee Member)<br><i>Model-based genomic studies of protein sequence evolution: convergence, epistasis, and amino acid acceptance rates</i>  |

### Preliminary Exam Committees

|      |   |
|------|---|
| 2022 | Kaiwen Deng (Bioinformatics, University of Michigan)                    |
| 2022 | Linghua Jiang (Bioinformatics, University of Michigan)                  |
| 2022 | Yufeng Zhang (Bioinformatics, University of Michigan)                   |
| 2021 | Anthony Nguyen (Human Genetics, University of Michigan)                 |
| 2021 | Hanbyul Cho (Bioinformatics, University of Michigan)                    |
| 2021 | Charles Ryan (Cellular and Molecular Biology, University of Michigan)   |
| 2021 | Kuan-Han Wu (Bioinformatics, University of Michigan)                    |
| 2021 | Wenjin Gu (Bioinformatics, University of Michigan)                      |
| 2020 | Jie Cao (Bioinformatics, University of Michigan)                        |
| 2020 | Zijun Gao (Bioinformatics, University of Michigan)                      |
| 2020 | Ashley Melnick (Cellular and Molecular Biology, University of Michigan) |
| 2019 | Benjamin Yang (Biomedical Engineering, University of Michigan)          |
| 2019 | Maria Virgilio (Cellular and Molecular Biology, University of Michigan) |
| 2018 | Zhi Carrie Li (Bioinformatics, University of Michigan)                  |
| 2018 | Kevin Hu (Bioinformatics, University of Michigan)                       |
| 2018 | Siyu Liu (Bioinformatics, University of Michigan)                       |
| 2018 | Alexandra Weber (Bioinformatics, University of Michigan)                |
| 2018 | Mitch Fernandez (Bioinformatics, University of Michigan)                |
| 2017 | Tingyang Li (Bioinformatics, University of Michigan)                    |
| 2017 | Marcus Sherman (Bioinformatics, University of Michigan)                 |
| 2017 | Adrienne Shami (Human Genetics, University of Michigan)                 |
| 2017 | Trenton Frisbie (Human Genetics, University of Michigan)                |
| 2017 | Melissa Englund (Human Genetics, University of Michigan)                |
| 2017 | Peter Orchard (Bioinformatics, University of Michigan)                  |
| 2017 | Li Guan (Bioinformatics, University of Michigan)                        |
| 2016 | Shriya Sethuraman (Bioinformatics, University of Michigan)              |
| 2016 | Jed Carlson (Bioinformatics, University of Michigan)                    |

### Industry Experience

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|-----------|--|
| 2013–2014 | Consultant, Color Genomics<br>Personalized medicine / genomics startup |
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### Publications

\* Indicates co-first authorship † Indicates co-senior authorship  
underscore indicates lab members

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## Patents

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