

Denghui Chen, B.S.
ORCID: 0000-0002-6541-3418
Email: dec037@ucsd.edu
<https://deeeeen.github.io>

Education

09/2022-	Ph.D. Bioinformatics and System Biology, University of California San Diego (UC San Diego) • Advisor: Dr. Abraham A. Palmer • Co-advisor: Dr. Melissa Gymrek
2017-2019	B.S. Computer Engineering, UC San Diego
2015-2017	Computer and Information Science, College of San Mateo (transferred)
2013-2015	Software Technology and Application, Macau University of Science and Technology (withdrawn)

Research Experience

09/2022-	Graduate Student Researcher with Dr. Abraham A. Palmer , UC San Diego
03/2020-09/2022	Research Data Analyst with Dr. Abraham A. Palmer , UC San Diego • Low-coverage whole-genome-sequencing genotyping pipeline development and optimization
12/2019-09/2022	Volunteer Researcher with Dr. Shi Huang , UC San Diego • Meta-analysis with machine learning on human microbiome
11/2018-12/2019	Undergrad Researcher with Dr. Austin D. Swafford , Center for Microbiome Innovation, UC San Diego • Computational tool development for meta-analysis with machine learning on human microbiome

Teaching Experience

Winter 2024	Teaching assistant, CSE 284: Personal Genomics for Bioinformaticians, UC San Diego
-------------	--

Fellowships, Awards, Honors

2025-2028	NIH NRSA F31 Individual Predoctoral Fellowship
2021	UC San Diego Staff Appreciation and Recognition Award
2018	UC San Diego Chancellor's Research Excellence Scholarships
2016-2017	Phi Theta Kappa Honor Society, College of San Mateo
2016	The 2016 University Physics Competition Bronze Medal
2013-2015	Full Scholarship, Macau University of Science and Technology

Professional & Academic Services and Memberships

2025	Co-Chair, Organizing Committee, UC San Diego Bioinformatics Exchange Symposium (BEx) 2025
2024-2025	Member, Student Organizing Committee, UC San Diego Genetics, Bioinformatics, & Systems Biology Colloquium (GBSBC)
2024-2025	Co-Director of Internal Affairs, UC San Diego Graduate Bioinformatics Student Council
2024	Session Moderator, Disease Models and Genome Biology sessions. The 21st Annual Meeting of the Complex Trait Community in Collaboration with the Rat Genomics Community, Medical College of Wisconsin, October 2-5, 2024

2024

Member, Organizing Committee, UC San Diego Bioinformatics Exchange Symposium (BEx) 2024

Ad hoc peer review

Cell Reports (02/2025, Invited by advisor; editor approved independent contribution)

Memberships

American Society of Human Genetics (since 2021)

Publications

* These authors contributed equally

Preprints

1. Tonnele H*, **Chen D***, Morillo F, Garcia-Calleja J, Chitre AS, Johnson BB, Sanches TM, Bonder MJ, Gonzalez A, Kosciolk T, George AM, Han W, Holl K, Horvath A, Ishiwari K, King CP, Lamparelli AC, Martin CD, Martinez AG, Netzley AH, Tripi JA, Wang T, Bosch E, Doris PA, Stegle O, Chen H, Flagel SB, Meyer PJ, Richards JB, Robinson TE, Woods LCS, Polesskaya O, Knight R, Palmer AA, Baud A. Novel insights into the genetic architecture and mechanisms of host/microbiome interactions from a multi-cohort analysis of outbred laboratory rats. *bioRxiv* [Preprint]. 2025 Mar 27:2025.03.20.644349. doi: 10.1101/2025.03.20.644349. PMID: 40166210; PMCID: PMC11957159.

First author publications

1. **Chen D**, Chitre AS, Nguyen KH, Cohen KA, Peng BF, Ziegler KS, Okamoto F, Lin B, Johnson BB, Sanches TM, Cheng R, Polesskaya O, Palmer AA. A cost-effective, high-throughput, highly accurate genotyping method for outbred populations. *G3 (Bethesda)*. 2025 Feb 5;15(2):jkae291. doi: 10.1093/g3journal/jkae291. PMID: 39670731; PMCID: PMC11797033.
2. Jiang S*, **Chen D***, Ma C, Liu H, Huang S, Zhang J. Establishing a novel inflammatory bowel disease prediction model based on gene markers identified from single nucleotide variants of the intestinal microbiota. *Imeta*. 2022 Jul 24;1(3):e40. doi: 10.1002/imt2.40. PMID: 38868717; PMCID: PMC10989788.
3. Ma C*, Zhang C*, **Chen D***, Jiang S, Shen S, Huo D, Huang S, Zhai Q, Zhang J. Probiotic consumption influences universal adaptive mutations in indigenous human and mouse gut microbiota. *Commun Biol*. 2021 Oct 18;4(1):1198. doi: 10.1038/s42003-021-02724-8. PMID: 34663913; PMCID: PMC8523657.

Co-author publications

4. Santhanam N, Sanchez-Roige S, Mi S, Liang Y, Chitre AS, Munro D, **Chen D**, Gao J, Garcia-Martinez A, George AM, Gileta AF, Han W, Holl K, Hughson A, King CP, Lamparelli AC, Martin CD, Nyasimi F, St Pierre CL, Sumner S, Tripi J, Wang T, Chen H, Flagel S, Ishiwari K, Meyer P, Polesskaya O, Saba L, Solberg Woods LC, Palmer AA, Im HK. RatXcan: A framework for cross-species integration of genome-wide association and gene expression data. *PLoS Genet*. 2025 Mar 31;21(3):e1011583. doi: 10.1371/journal.pgen.1011583. Epub ahead of print. PMID: 40163524.
5. Kuhn BN, Cannella N, Chitre AS, Nguyen KH, Cohen K, **Chen D**, Peng B, Ziegler KS, Lin B, Johnson BB, Missfeldt Sanches T, Crow AD, Lunerti V, Gupta A, Dereschewitz E, Soverchia L, Hopkins JL, Roberts AT, Ubaldi M, Abdulmalek S, Kinen A, Hardiman G, Chung D, Polesskaya O, Solberg Woods LC, Ciccocioppo R, Kalivas PW, Palmer AA. Genome-wide association study reveals multiple loci for nociception and opioid consumption behaviors

associated with heroin vulnerability in outbred rats. *Mol Psychiatry*. 2025 Feb 25. doi: 10.1038/s41380-025-02922-4. Epub ahead of print. PMID: 40000848.

6. Okamoto F, Chitre AS, Missfeldt Sanches T, **Chen D**, Munro D, Aron AT, Beeson A, Bimschleger HV, Eid M, Garcia Martinez AG, Han W, Holl K, Jackson T, Johnson BB, King CP, Kuhn BN, Lamparelli AC, Netzley AH, Nguyen KH, Peng BF, Tripi JA, Wang T, Ziegler KS, Adams DJ, Baud A, Carrette LLG, Chen H, de Guglielmo G, Dorrestein P, George O, Ishiwari K, Jablonski MM, Jhou TC, Kallupi M, Knight R, Meyer PJ, Solberg Woods LC, Polesskaya O, Palmer AA. Y and mitochondrial chromosomes in the heterogeneous stock rat population. *G3 (Bethesda)*. 2024 Nov 6;14(11):jkae213. doi: 10.1093/g3journal/jkae213. PMID: 39250761; PMCID: PMC11540319.
7. Lara MK, Chitre AS, **Chen D**, Johnson BB, Nguyen KM, Cohen KA, Muckadam SA, Lin B, Ziegler S, Beeson A, Sanches TM, Solberg Woods LC, Polesskaya O, Palmer AA, Mitchell SH. Genome-wide association study of delay discounting in Heterogeneous Stock rats. *Genes Brain Behav*. 2024 Aug;23(4):e12909. doi: 10.1111/gbb.12909. PMID: 39119916; PMCID: PMC11310854.
8. de Jong TV, Pan Y, Rastas P, Munro D, Tutaj M, Akil H, Benner C, **Chen D**, Chitre AS, Chow W, Colonna V, Dalgard CL, Demos WM, Doris PA, Garrison E, Geurts AM, Gunturkun HM, Guryev V, Hourlier T, Howe K, Huang J, Kalbfleisch T, Kim P, Li L, Mahaffey S, Martin FJ, Mohammadi P, Ozel AB, Polesskaya O, Pravenec M, Prins P, Sebat J, Smith JR, Solberg Woods LC, Tabakoff B, Tracey A, Uliano-Silva M, Villani F, Wang H, Sharp BM, Telese F, Jiang Z, Saba L, Wang X, Murphy TD, Palmer AA, Kwitek AE, Dwinell MR, Williams RW, Li JZ, Chen H. A revamped rat reference genome improves the discovery of genetic diversity in laboratory rats. *Cell Genom*. 2024 Apr 10;4(4):100527. doi: 10.1016/j.xgen.2024.100527. Epub 2024 Mar 26. PMID: 38537634; PMCID: PMC11019364.

Invited Presentations

- | | |
|------|--|
| 2024 | "Complex Variants in Heterogeneous Stock Rats." <i>10th Annual Retreat for the Center for Genetics, Genomics, and Epigenetics of Substance Use Disorders in Outbred Rats</i> , September 6, 2024 |
| 2024 | "Calling Structural Variants in Heterogeneous Stock Rats Using PacBio HiFi Sequencing." <i>International Rat Omics Consortium</i> , February 27, 2024 |

Conference Presentations

- | | |
|------|---|
| 2023 | "Structural variants calling in extended rat pedigree using PacBio HiFi sequencing." <i>The 20th Annual Meeting of the Complex Trait Community in Collaboration with the Rat Genomics Community</i> , University of Tennessee Health Science Center, October 8-12, 2023 |
| 2022 | "Hybrid Genotyping Pipeline on Lc-WGS and ddGBS Sequences for Heterogeneous Stock Rats." <i>The 19th Annual Meeting of the Complex Trait Community in Collaboration with the Rat Genomics Community</i> , University of Colorado, September 29-30, 2022 |
| 2021 | "Low-Coverage Whole Genome Sequence Genotyping Pipeline for <i>Peromyscus Californicus</i> ." <i>The 18th Annual Meeting of the Complex Trait Community in Collaboration with the Rat Genomics Community</i> , September 1-3, 2021 |

Conference Posters

- | | |
|------|---|
| 2024 | "Structural Variants in Heterogeneous Stock Rats." <i>The 21st Annual Meeting of the Complex Trait Community in Collaboration with the Rat Genomics Community</i> , Medical College of Wisconsin, October 2-5, 2024 |
|------|---|

- 2022 "Calling Structural Variants in Extended Rat Pedigree Using PacBio HiFi Sequencing." *ASHG 2022*, Los Angeles, CA, November 25-29, 2022
- 2021 "Low-Coverage Whole Genome Sequence Genotyping Pipeline on Heterogeneous Stock Rats." *ASHG 2021*, October 18-22, 2021
- 2019 "Leverage the Power of Massive Public Datasets Through Qiita." *IBM AI Research Week*, MIT, September 16-20, 2019