

Denghui Chen

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Education

- 09/2022 - present **Ph.D.** Bioinformatics and System Biology
- University of California San Diego
 - Advisor: Dr. Abraham A. Palmer
- 2019 **B.S.** Computer Engineering
- University of California San Diego

Research Experience

- 03/2020 - present **Research Data Analyst**, Palmer Lab, UC San Diego
- Advisor: Dr. Abraham A. Palmer
 - Genotyping pipelines development and optimization
- 12/2019 - present **Volunteer Researcher**, UC San Diego/University of Hong Kong
- Advisor: Dr. Shi Huang
 - Meta-analysis with machine learning on microbiome
- 11/2018 - 03/2020 **Undergrad Researcher**, Center for Microbiome Innovation, UC San Diego
- Advisor: Dr. Austin D. Swafford
 - Computational tool development for meta-analysis with machine learning on microbiome

Professional Experience

- 01/2018 - 06/2018 **Server Team Developer**, Global Ties, UC San Diego
- Advisor: Dr. Maurício de Oliveira
 - Development on an ambulance dispatch platform with a web-based dispatcher interface and an Android App for ambulances

Publications

Jiang, S.*, **Chen, D.***, Ma, C., Liu, H., Huang, S., Zhang J. Establishing a novel inflammatory bowel disease predictive model based on gene markers identified from single nucleotide mutation of intestinal microbiota. *iMeta*. 1, e40 (2022).

* These authors contributed equally

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* 4, 1198 (2021)

* These authors contributed equally

Presentations

Chen, D., Nguyen, K., Cohen, K., Polesskaya, O., Sebat, J., Palmer, A.A. Calling Structural Variants in Extended Rat Pedigree Using PacBio HiFi Sequencing. *ASHG 2022*, Los Angeles, CA, November 25-29, 2022, poster.

Chen, D., Chitre, A.S., Nguyen, K., Cohen, K., Cheng, R., Polesskaya, O., Palmer, A.A. Hybrid Genotyping Pipeline on Lc-WGS and ddGBS Sequences for Heterogeneous Stock Rats. *The 19th Annual Meeting of the Complex Trait Community in Collaboration with the Rat Genomics Community*, University of Colorado, September 29-30, 2022, oral presentation.

Chen, D., Cheng, R., Chitre, A.S., Polesskaya, O., Palmer, A.A. Low-Coverage Whole Genome Sequence Genotyping Pipeline on Heterogeneous Stock Rats. *ASHG 2021*, October 18-22, 2021, poster.

Chen, D., Chitre, A.S., Li, J., Settles, M.L., Glasper, E.R., Fisher, H.S., Luo, P.X., Trainor, B.C., Palmer, A.A., Polesskaya, O. Low-Coverage Whole Genome Sequence Genotyping Pipeline for *Peromyscus Californicus*. *The 18th Annual Meeting of the Complex Trait Community in Collaboration with the Rat Genomics Community*, September 1-3, 2021, oral presentation.

Chen, D., Huang, S., Song, S.J., Swafford, A.D., Knight, R. Leverage the Power of Massive Public Datasets Through Qiita. *IBM AI Research Week*, MIT, September 16-20, 2019, poster.

Awards

UCSD Staff Appreciation and Recognition Award 2021-2022

UCSD Chancellor's Research Excellence Scholarships, Fall 2018

The 2016 University Physics Competition Bronze Medal, Nov. 2016

The 11th China National MUN Conference Ambassador Award, Nov. 2014

Coursework

Neural Networks/Deep Learning, Recommender Sys & Web Mining, Statistical NLP, AI Algorithm & Social Language, Intro to AI: Search & Reasoning, Intro to AI: Statistical Approaches, Advanced Data Structures, Advanced Digital Design

Coursework Projects

Bitcoin Hashing Project

- Implementation of a bitcoin hashing FPGA using System Verilog and SHA 256.

Hyper-parameters Comparison for AlexNet

- Hyper-parameters comparison using PyTorch, TensorFlow: pooling functions, activation functions, optimization methods, and learning rates.

Interpretability of NLP Classifier

- Implementation of a explainer combing SHAP and LIME for NLP Classification results.

Supervised Learning Algorithms Comparison

- Used Python and scikit-learn library to compare DT, KNN, LR, RF and SVM performances on four different UCI Machine Learning datasets.