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- EDUCATION**      **University of California, Davis, USA**      2014-19  
 Ph.D., Biomedical Engineering with Designated Emphasis in Biotechnology  
 Dissertation: Statistical methods & software for comparative analysis of RNA structure profiling data  
 Advisor: Sharon Aviran
- Indian Institute of Technology, Delhi, India**      2008-13  
 B. Tech & M. Tech (Dual Degree Program)  
 Biochemical Engineering & Biotechnology (Major)  
 Nano Science & Engineering (Minor)
- RESEARCH EXPERIENCE**      **Postdoctoral Scholar**, University of California, San Francisco, USA      2021-  
 Advisor: Michael McManus  
 Developing computational methods and conducting CRISPR screens to quantify genetic interactions that drive cancer
- Bioinformatician II**, Gladstone Institute of Data Science & Biotechnology, USA      2020-21  
 Supervisor: Alexander R. Pico, Director, Bioinformatics Core  
 Delivered computational solutions for analysis of a large variety of deep-sequencing data sets in projects related to diverse biomedical research problems
- Biostatistician I**, Gladstone Institute of Data Science & Biotechnology, USA      2019  
 Supervisor: Eva Wang, Director, Bioinformatics Core  
 Delivered computational solutions for analysis of a large variety of deep-sequencing data sets in projects related to diverse biomedical research problems
- PUBLICATIONS**      **Post-Ph.D.**      2019-
19. Gonzalez-Teran, B., ... five authors ..., **Choudhary, K.**, ... fifteen authors ..., Conklin, B. R., Black, B. L., Bruneau, B. G., Krogan, N. J., Pollard, K. S., Srivastava, D., Transcription factor protein interactomes reveal genetic determinants in heart disease. *Cell*, 185, 1-21, 2022.
  18. Abouleisa, R. R. E., ... ten authors ..., **Choudhary, K.**, ... eleven authors ..., Srivastava, D., Bolli, R., Mohamed, T. M. A., Transient cell cycle induction in cardiomyocytes to treat ischemic heart failure. *Circulation*, 2022. [DOI:10.1161/CIRCULATIONAHA.121.057641]
  17. **Choudhary, K.**<sup>#</sup>, Pico, A. R.<sup>#</sup>, Introducing R as a smart version of calculators enables beginners to explore it on their own. *F1000Research*, 10(859), 2021. (<sup>#</sup>co-corresponding author) [education]
  16. **Choudhary, K.**, ... two authors ..., Bader, G. D., Pico, A. R., Morris, J. H., scNetViz: from single cells to networks using Cytoscape. *F1000Research*, 10(448), 2021.
  15. Taubes, A., ... eleven authors ..., **Choudhary, K.**, ... ten authors ..., Glicksberg, B., Sirota, M., Huang, Y., Experimental and real-world evidence supporting the computational repurposing of bumetanide for APOE4-related Alzheimer's disease. *Nature Aging*, 1, 932-947, 2021.
  14. Gulbranson, D., ... seven authors ..., **Choudhary, K.**, Thomas, R., Mucke, L., Phenotypic differences between the Alzheimer's disease-related hAPP-J20 model and heterozygous Zbtb20 knockout mice. *eNeuro*, 8(3), 2021.

13. **Choudhary, K.**<sup>#</sup>, Narang, A.<sup>#</sup>, Urn models for stochastic gene expression yield intuitive insights into the probability distributions of single-cell mRNA and protein counts. *Physical Biology*, 17(6), 066001, 2020. (#co-corresponding author)
12. Garcia, P. D., Leach, R. W., Wadsworth, G. M., **Choudhary, K.**, Li, H., Aviran, S., Kim, H. D., Zakian, V. A., Stability and nuclear localization of yeast telomerase depend on protein components of RNase P/MRP. *Nature Communications*, 11(1), 1-19, 2020. [recommended by *Faculty Opinions*]
11. **Choudhary, K.**<sup>#</sup>, Narang, A.<sup>#</sup>, Analytical expressions and physics for single-cell mRNA distributions of the *lac* operon of *E. coli*. *Biophysical Journal*, 117(3), 572-586, 2019. (#co-corresponding author)

Ph.D.

2014-19

10. **Choudhary, K.**, Lai, Y. H., Tran, E., Aviran, S., dStruct: identifying differentially reactive regions from RNA structure profiling data. *Genome Biology*, 20(1), 40, 2019. [open-source Bioconductor package]
9. Lai, Y. H., **Choudhary, K.**, Cloutier, S. C., Xing, Z., Aviran, S., Tran, E., Genome-wide discovery of DEAD-Box RNA helicase targets reveals RNA structural remodeling in transcription termination. *Genetics*, 212(1), 153-174, 2019.
8. Watters, K. E., **Choudhary, K.**, Aviran, S., Lucks, J. B., Perry, K. L., Thompson, J. R., Probing of RNA structures in a positive sense RNA virus reveals selection pressures for structural elements. *Nucleic Acids Research*, 46(5), 2573-2584, 2018.
7. **Choudhary, K.**<sup>\*</sup>, Deng, F.<sup>\*</sup>, Aviran, S., Comparative and integrative analysis of RNA structural profiling data: current practices and emerging questions. *Quantitative Biology*, 5(1), 3-24, 2017. (<sup>\*</sup>co-first author)
6. **Choudhary, K.**, Ruan, L., Deng, F., Shih, N., Aviran, S., SEQualyzer: interactive tool for quality control and exploratory analysis of high-throughput RNA structural profiling data. *Bioinformatics*, 33(3), 441-443, 2016.
5. **Choudhary, K.**, ... four authors ..., Aviran, S., Metrics for rapid quality control in RNA structure probing experiments. *Bioinformatics*, 32(23), 3575-3583, 2016.

Undergraduate/Masters

-2014

4. **Choudhary, K.**, Oehler, S., Narang, A., Protein distribution from a stochastic model of *lac* operon with DNA looping: analytical expressions and comparison with experiments. *PLoS ONE*, 9(7), e102580, 2014.
3. Grover, A.<sup>\*</sup>, Pande, A.<sup>\*</sup>, **Choudhary, K.**<sup>\*</sup>, Gupta, K.<sup>\*</sup>, Sundar, D., Re-programming DNA-binding specificity in zinc finger proteins for targeting unique address in a genome. *Systems and Synthetic Biology*, 4(4), 323-329, 2010. (<sup>\*</sup>co-first author)

2. Zhu, L., **Choudhary, K.**, ... sixteen authors ..., Bruneau, B. G., Steinmetz, L., Krogan, N. J., Pollard, K. S., Srivastava, D., The transcription factor GATA4 regulates cell type-specific splicing through direct interaction with RNA in human iPS-derived cardiac progenitors.
1. **Choudhary, K.**<sup>#</sup>, Addition formulas for the  ${}_pF_p$  and  ${}_{p+1}F_p$  generalized hypergeometric functions with arbitrary parameters and their Kummer- and Euler-type transformations. (#corresponding author) [*arXiv*]

TEACHING EXPERIENCE [GRADUATE]	<p><b>Content Developer &amp; Instructor</b>, Gladstone Data Science Training Program 2019-21  Led workshops attended by Gladstone/UCSF graduate students, postdoctoral scholars, faculty, and international attendees in online sessions. Workshop titles:</p> <ul style="list-style-type: none"> <li>- Introduction to RNA-seq Data Analysis</li> <li>- Intermediate Bulk RNA-Seq Analysis</li> <li>- Current Practices in Single-Cell RNA-Seq Analysis</li> <li>- Introduction to Data Analysis with R</li> <li>- Data Visualization with ggplot2</li> </ul> <p>~100 hours of instruction, cumulative attendance ~1000, mean student rating 4.54/5</p> <p><b>Guest Discussion Lead</b>, UC San Francisco 2020  Topic: Dimensionality Reduction  Course: Statistical Methods in Bioinformatics (BMI206)  IOR: Katherine Pollard  ~20 students in class; positive feedback from IOR; not rated by students</p> <p><b>Guest Instructor &amp; Teaching Assistant</b>, UC Davis 2015-16  Course: Genomic Big Data Analysis (BIM289C)  IOR: Sharon Aviran  ~20 students per class; positive feedback from IOR; not rated by students</p> <p><b>Teaching Assistant</b>, IIT Delhi 2012-13  Courses: Advanced Biochemical Engineering (BEL850); Microbial Engineering (BEL713)  IOR: Atul Narang  ~20-30 students per class; positive feedback from IOR; not rated by students</p>
TEACHING EXPERIENCE [UNDERGRAD]	<p><b>Teaching Assistant</b>, UC Davis 2018  Course: Probability &amp; Statistics (BIM105)  IOR: David Rocke  ~70 students per class; mean student rating: 4.0/5</p> <p><b>President &amp; Tutor</b>, <i>Students Tutoring Students</i> club, UC Davis 2015-17  Tutored ~10 students in lower-division chemistry and mathematics courses for free  Recruited multiple volunteer tutors and connected them with students  Majority of our students identified with minoritized groups  Faculty advisor: Andreas Toupadakis</p>
TEACHING EXPERIENCE [BROADER COMMUNITY]	<p><b>Instructor</b>, UCSF AI4All Program 2021  Lectured on supervised learning &amp; led group discussion with diverse 9<sup>th</sup>-12<sup>th</sup> graders  Program Director: Marina Sirota</p> <p><b>GED Tutor</b>, Sacramento Public Library 2016</p>
OTHER WORK EXPERIENCE	<p><b>Bioinformatics Intern</b>, Roche Molecular Systems, USA 2017  Developed a machine learning classifier to call somatic variants identified in liquid biopsy  The method was integrated in Roche's pipeline for data analysis</p> <p><b>Chemical Product Developer (Entrepreneur)</b>, Saatvic CosmoCare, India 2012-14  Developed product formulations for metal polishes  Devised a low-cost manufacturing unit, marketing strategy, and managed supply line</p> <p><b>Biopharmaceutical Production Scale-Up Intern</b>, Biocon Limited, India 2011  Interfaced between Biocon's Mammalian Cell Culture Group and their Pilot Plant  Modeled and explained anomaly in gas transfer that was hindering scale-up of CHO cell cultures</p>

MENTORING EXPERIENCE	<b>Graduate students</b>	
	Yuhao Wang, PhD candidate, Biomedical Sciences, McManus lab, UCSF	2021-
	Yongin Choi, Rotation student, Biomedical Engineering, Aviran lab, UC Davis	2018
	<b>Undergraduate students</b>	
	Richard Phouasalith, Researcher, Biomedical Engineering, Aviran lab, UC Davis	2017
	Kyle Van Housen, Researcher, Biomedical Engineering, Aviran lab, UC Davis	2017
	Cassidy Dzoan, Researcher, Biomedical Engineering, Aviran lab, UC Davis	2017
	Huan Chen, International summer intern, GREAT program, Aviran lab, UC Davis	2016
	Qianyu Gao, International summer intern, GREAT program, Aviran lab, UC Davis	2015
	<b>High-school students</b>	
	Chubi Yambao, E-Mentor program, Sheldon High School Biotechnology Academy, CA	2017
	Jem Doan, E-Mentor program, Sheldon High School Biotechnology Academy, CA	2016
	Deirdre Willgohs, Intern, Aviran lab, UC Davis	2016
PEER REVIEWER	BMC Bioinformatics, PLOS ONE, The Journal of Chemical Physics, Scientific Reports, Entropy, Nature Communications, Proceedings of the Royal Society A, Biophysical Journal, Cancers, BMC Systems Biology, Nucleic Acids Research [Total: 24 articles reviewed; credits on Orcid]	2019-
COMMUNITY OUTREACH	Application reviewer, UCSF's AI4All program targeting diverse high schoolers	2021
	Invited speaker, seniors at Avenidas Village, Palo Alto, CA via <i>Skype a Scientist</i>	2021
	Career counselor, Douglass Middle School, Woodland, CA	2016
	Music teacher, Davis Mosaics initiative of the Davis Community Church, Davis, CA	2016
CONFERENCE PRESENTATIONS	<b>Choudhary, K., &amp; Aviran, S.,</b> dStruct: a Bioconductor package for differential analysis of RNA structurome profiling data. Poster, <b>26<sup>th</sup> Annual Meeting of the RNA Society</b> ; Virtual Meeting.	2021
	<b>Choudhary, K., &amp; Narang, A.,</b> Urn models for stochastic gene expression. Poster, <b>Biophysical Society 65<sup>th</sup> Virtual Annual Meeting</b> ; Virtual Meeting.	2021
	<b>Choudhary, K., &amp; Narang, A.,</b> Probability distributions of single-cell mRNA and protein counts derived by solving urn models for stochastic gene expression. Poster, <b>Biological Data Science conference of Cold Spring Harbor Laboratory</b> ; Virtual Meeting.	2020
	<b>Choudhary, K., Shih, N., &amp; Aviran, S.,</b> Noise in RNA structural profiling data and its impact on reactivities and structure prediction. Poster, <b>22<sup>nd</sup> Annual Meeting of the RNA Society</b> ; Prague, Czech Republic.	2017
	<b>Choudhary, K., Chen, H., Ruan, L., Shih, N., Deng, F., &amp; Aviran, S.,</b> Methods for rapid and scalable quality assessment of RNA structure probing data. Poster, <b>Biological Data Science conference of Cold Spring Harbor Laboratory</b> ; New York, USA.	2016
	<b>Choudhary, K., Shih, N., Deng, F., Ledda, M., Li, B., &amp; Aviran, S.</b> Methods for rapid quality assessment of RNA structure probing data. Poster, <b>Computational RNA Biology conference of Wellcome Genome Campus</b> ; Cambridge, UK.	2016
AWARDS & FELLOWSHIPS	Conference Award (sponsored by NSF) to attend the RNA Society annual meeting	2021
	Graduate Student Travel Award, Graduate Studies, UC Davis	2017
	Travel fellowship to attend RNA Society annual meeting, RNA Society	2017
	Biomedical Engineering Graduate Group Travel Award, UC Davis	2016
	Travel bursary, Wellcome Genome Campus, Cambridge, UK	2016
	Scholarship for all-India rank 26 in GATE test, Government of India	2012-13
	Summer Undergraduate Research Award, Industrial R&D Unit, IIT Delhi	2010