

## Nelson Johansen

University of California, Davis

njjohansen@ucdavis.edu

---

EDUCATION	<b>University of California, Davis</b> <i>Ph.D.</i> in Computer Science Advisor: Gerald Quon	2020
	<b>Research Focus</b> Development of unsupervised deep learning-based approaches to integrate biological data from multiple modalities (imaging, DNA sequence, electrophysiology) in order to bridge the gap between molecular biology events and human disease. Current research focuses on deep generative models to integrate imaging, DNA sequence and electrophysiological measurements, in order to better understand how changes in molecular biology, reflected in high dimensional transcriptomic data, might fundamentally alter how the corresponding neurons fire. Previous works includes the development of a novel neural network architecture and associated loss function, based on associative domain adaptation, to solve an important problem in genomics, that of integrating and interpreting differences between high dimensional data collected across laboratories, conditions and species.	
	<b>University of California, Davis</b> <i>B.Sc.</i> in Computer Science	2015
PUBLICATIONS	Johansen, Nelson, and Gerald Quon. "scAlign: A Tool for Alignment, Integration, and Rare Cell Identification from ScRNA-Seq Data." <i>Genome Biology</i> , vol. 20, no. 1, Aug. 2019, p. 166, doi:10.1186/s13059-019-1766-4.	
	Hodge, Rebecca D., et al. "Conserved cell types with divergent features in human versus mouse cortex." <i>Nature</i> (2019): 1-8.	
INVITED TALKS	Characterizing cell type-specific responses to stimuli using single cell RNA sequencing. <b>Lawrence Livermore National Laboratory</b>	2018
	Characterizing cell type-specific responses to stimuli using single cell RNA sequencing. <b>NASA's Ames Research Center</b>	2018

	Leveraging big data genomics for the inference of drug targets. <b>11th Annual Spotlight on Junior Investigators Cancer Research Symposium,</b> UC Davis Comprehensive Cancer Center.	2017
	The role of big data in genomics and medicine: predicting combination therapies to target genetic vulnerabilities in cancer. <b>38th Annual Institute on Research and Statistics,</b> CSU Sacramento.	2017
PANEL MEMBER	Deep Domain Adaption Networks Identify and Explain Cell State Changes after Stimulus. <b>Artificial Intelligence &amp; Machine Learning Symposium</b> UC Davis Medical Center	2018
POSTER PRESENTATIONS	Unsupervised Deep Neural Networks Harmonize Multiple Data Sources and Explain Inherent Biases. <b>Nelson Johansen</b> , Gerald Quon ML4H: Machine Learning for Health at NIPS 2018	2018
	Characterizing cell type-specific responses to stimuli using single cell RNA sequencing. <b>Nelson Johansen</b> , Gerald Quon Beyond the Cell Atlas: Frontiers in Cell Biology Driven by New Technology. Chan Zuckerberg Initiative	2018
	Predicting combination therapies to target genetic vulnerabilities in cancer. <b>Nelson Johansen</b> , Gerald Quon UC Davis DEB Retreat.	2017
	Network based strategy for predicting combinations of compounds. <b>Nelson Johansen</b> , Gerald Quon 22nd Annual Cancer Research Symposium, UC Davis Cancer Center & 3rd UC Davis Human Genomics Symposium	2017
HONORS AND ACTIVITIES	Top abstract at the inaugural AI & ML Symposium, UC Davis Medical Center UC Davis Dean's Honor List UC Davis Computer Science Tutor	
GRADUATE COURSEWORK	Graph Theory	2017
	Machine Learning	2017
	Artificial Intelligence	2015
TEACHING	Introduction to TensorFlow	2019