

Exponent®
Engineering & Scientific Consulting

Omid Sameie, Ph.D.

Senior Scientist | Computer, Data & Security Sciences
Los Angeles
+1-310-754-2772 | osameie@exponent.com

Professional Profile

Dr. Omid Sameie is a data scientist and theoretical astrophysicist with +10 years of experience utilizing advanced numerical techniques to solve complex problems. Dr. Sameie is well-versed in the entire data science life cycle, including data cleaning, preprocessing, analysis, model development, and data visualization. Dr. Sameie has helped his clients enhance their business operations by implementing machine learning algorithms supplied with real world data.

Prior to joining Exponent, Dr. Sameie served as a Data Scientist at GoGuardian, an educational technology software company, where he played a key role in supporting the machine learning (ML) infrastructure at production level, ensuring the smooth operation of the ML models.

Dr. Sameie is proficient in multiple programming languages, including Python, SQL, Fortran, C, and Mathematica, and is experienced using cloud-based computing services such as AWS and DataBricks.

Dr. Sameie holds a Ph.D. from the University of California Riverside, where his research focused on the role of Dark Matter in galaxy formation. His groundbreaking work involved conducting some of the largest simulations of galaxy formation, leading to novel solutions to long-standing puzzles in Cosmology. Following his Ph.D., Dr. Sameie held a prestigious postdoctoral research position at the University of Texas Austin for three years.

Key Highlights:

- Extensive experience in the entire data science life cycle, including data cleaning, preprocessing, analysis, model development, and data visualization.
- Proven track record of developing, testing, and maintaining machine learning algorithms with real-life data for business growth.
- Proficient in multiple programming languages, including Python, SQL, Fortran, C, and Mathematica.
- Strong expertise in cloud-based computing services such as AWS and DataBricks.
- Ph.D. in Physics from the University of California Riverside, with groundbreaking research on the role of Dark Matter in galaxy formation.
- Postdoctoral research experience at the University of Texas Austin, contributing to novel solutions in Cosmology.

Academic Credentials & Professional Honors

Ph.D., Physics, University of California, Riverside, 2019

Prior Experience

Data Scientist I, GoGuardian, El Segundo CA, 2022-2023

Postdoctoral Researcher, University of Texas Austin, 2019-2022

Graduate Research Assistant, University of California Riverside, 2017-2019

Graduate Teaching Assistant, University of California Riverside, 2014-2016

Professional Affiliations

American Astronomical Society (AAS)

Publications

“ComparingImplementationsofSelf-InteractingDarkMatterintheGizmoandArepoCodes”Meshkidze, Helen; Mercado, Francisco; Bullock, James; Weatherall, James; Sameie, Omid; Robles, Victor; Kaplinghat, Manoj, (to be submitted)

“Formation of bound stellar clusters in simulated dwarf galaxies at high redshift” Sameie, Omid; Boylan-Kolchin, Michael; Ma, XiangCheng; Hopkins, Philip; Wetzel, Andrew; +FIRE collaboration (final internal review)

“Strong lensing signatures of self-interacting dark matter in low-mass halos” Gilman, Daniel; Bovy, Jo; Treu, Tommaso; Nierenberg, Anna; Birrer, Simon; Benson ,Andrew; Sameie, Omid, MNRAS, 507, 2432

“Shapes of Milky-Way-Mass Galaxies in Self-Interacting Dark Matter”, Vargya, Drona; Sanderson, Robyn, Sameie, Omid, Boylan-Kolchin, Michael; Hopkins, Philp F.; Wetzel, Andrew; Graus, Andrew, arXiv: 2104.14069

“The central densities of Milky Way-mass galaxies in cold and self-interacting dark matter models”, Sameie,Omid, Boylan-Kolchin, Michael; Sanderson, Robyn; Vargya, Drona; Hopkins, Philip; Wetzel, Andrew; Bullock, James; Graus, Andrew, Robles, Victor, MNRAS, 507, 720

“Simulation the “hidden giant” in cold and self-interacting dark matter models”, Sameie, Omid; Chakrabarti, Sukanya; Yu, Hai-Bo; Boylan-Kolchin, Michael; Vogelsberger, Mark; Zavala, Jesu´s; Hernquist, Lars, arXiv:2006.06681

“Self-interacting dark matter subhaloes in the Milky Way’s tides” Sameie, Omid; Yu, Hai-Bo; Sales, Laura; Vogelsberger, Mark; Zavala, Jesu´s, Physical Review Letters, 124, 1102 (2020)

“The effect of dark matter interactions on halo abundance- a Press-Schechter approach” Sameie, Omid; Benson, Andrew; Sales, Laura V.; Yu, Hai-Bo; Moustakas, Leonidas A.; Creasey, Peter, 2019, ApJ, 874,101S

“Globular clusters formed within dark haloes I: Present-day abundance, distribution and kinematics” Creasey, Peter; Sales, Laura V.; Peng, Eric W.; Sameie, Omid, 2018, MNRAS, 482, 219

“The impact of baryonic disks on the shapes and profiles of the self-interacting dark matter haloes” Sameie, Omid; Creasey, Peter; Yu, Hai-Bo; Sales, Laura V.; Vogelsberger, Mark; Zavala, Jesu´s, 2018, MNRAS, 479, 359

“Spreading out and staying sharp - creating diverse rotation curves via baryonic and self-interaction effects” Creasey, Peter; Sameie, Omid; Sales, Laura V.; Yu, Hai-Bo; Vogelsberger, Mark; Zavala, Jesu´s,

2017, MNRAS, 468, 2283

Presentations

Friday lunch talk, University of Chicago, Chicago, March 2021

Astronomy seminar, University of Arizona, Tucson Arizona, August 2020

Cosmology seminar, Sharif University, Tehran Iran, May 2020

Astrophysics seminar, California Institute of Technology, Pasadena CA, May 2019

Cosmology seminar, School of Astronomy, IPM, Tehran Iran, December 2018

Invited speaker, Cosmology seminar, KIPAC, Stanford University, Palo Alto CA, October 2018

Astrophysics Seminar, University of California Riverside, Riverside CA, October 2018

Galaxy formation and evolution in Southern California, California Institute of Technology, Pasadena CA, June 2018

2018 Santa Cruz Galaxy Workshop, University of California Santa Cruz, Santa Cruz CA, August 2018

DaMaSC-IV Symposium, California Institute of Technology, Pasadena CA, May 2017

Additional Education & Training

Deep Learning Specialization, Coursera 2020

Introduction to the Data Engineering, Coursera 2023

Research Grants

15M CPU-hour computing time on XSEDE (co-PI), University of Texas Austin, 2020

0.5M CPU-hour computing time on UCSD HPC center (co-PI), University of California Riverside, 2018

Peer Reviews

Monthly Notices of Royal Astronomical Society (MNRAS)