Abtin Shahidi

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Work Experience

2026– **Independent Researcher**, Riverside, USA.

2025–2026 **Postdoctoral Scholar**, University of California, Riverside, USA.

2021–2024 **Senior Data Scientist**, VideoAmp.

- **Demographic Imputation Across the 120 million U.S. Households**: Designed and implemented a Gibbs sampler for Bayesian non-parametric density estimation to handle missing data in a nested structure, optimizing performance for 10 million data points and 1 million parameters.
- **Identity Graph Construction**: Developed a probabilistic framework for modeling the evolution of interconnected bipartite graphs, handling large-scale data with 100 million nodes and 1 billion edges, consist of demographic information from multiple resources and their evolution with time, focusing on geographical consistency.
- **Behavioral Modeling**: Applied hierarchical Bayesian models on nonhomogeneous Poisson point processes to analyze purchase and TV viewership behaviors, leveraging autoregression and random effects for over 100,000 time-series.
- **Survey-Based Lift Methodology**: Engineered a projection method using purchase panel data, estimating ad effectiveness through identity graph matchability and observability.

2017–2021 **Graduate Research Assistant**, University of California, Riverside.

- Selection of Massive Evolved Galaxies at $3 \leq z \leq 4.5$ in the CANDELS Fields: Conducted a large-scale analysis of galaxy samples (1 million) within the CANDELS fields, applying advanced statistical learning techniques.
- Employed hierarchical Bayesian modeling to explore star-forming sequences, factoring environmental and cosmic time dependencies with sample sizes reaching 1 million.

2016-2021 **Teaching Assistance**, University of California, Riverside, USA.

- Introductory Physics and Laboratory, Interstellar Astrophysics, Foundation of Applied Machine Learning

Education

2017–2021 **Ph.D. in Physics and Astronomy**, University of California, Riverside, USA.

- **Thesis:** "*Statistical study of the galaxy populations at high redshift from multiwavelenght catalogs*"

2016–2017 **M.Sc. in Physics and Astronomy**, University of California, Riverside, USA.

2012–2016 **B.Sc. in Physics**, Sharif University of Technology, Tehran, Iran.

Honors & Awards

- NASA MIRO Fellowships and Internships in Extremely Large Dataset (FIELDS) Fellowship: (2019-2020)
- Dean's Distinguished Fellowship (2016): University of California, Riverside
- Silver medal (2010): Iranian National Astronomy and Astrophysics Olympiad

Publications

- Shahidi, A., et al. (2020). *Selection of Massive Evolved Galaxies at* $3 \leq z \leq 4.5$ *in the CANDELS Fields*, Astrophysical Journal, 897(1):44
- Hemmati, S., et al. (2020). *Bridging between the Integrated and Resolved Main Sequence of Star Formation*, Astrophysical Journal Letters, 896(1):L17
- Darvish, B., et al. (2020). *Spectroscopic Confirmation of a Coma Cluster Progenitor at* $z \sim 2.2$, Astrophysical Journal, 892(1):8
- Chartab, N., et al. (2020). *Large-scale Structures in the CANDELS Fields: The Role of the Environment in Star Formation Activity*, Astrophysical Journal, 890(1):7
- Hemmati, S., et al. (2019). *Bringing Manifold Learning and Dimensionality Reduction to SED Fitters*, Astrophysical Journal Letters, 881(1):L14

Programming Languages and Tools

- Python, Stan, SQL, Spark, GNU/Linux, LaTeX, R, Julia, Mathematica, Matlab
- NumPy, Pandas, SciPy, pyStan, scikit-learn, scikit-tda, Tensorflow, Theano, PyMC, PySpark, prophet, giotto-tda