Tomer Tal

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Education

Yale University, Ph.D. in Astrophysics	2012
Yale University, M.Sc. in Astrophysics	2008
Ben Gurion University, Israel, B.Sc. in Physics	2005

Relevant Courses:

Probability and statistics; C Programming; Linear Algebra; Computational Methods in Astrophysics
Coursera: Data Science; Statistics: Making sense of Data; Machine Learning

Computer Skills

Python (numpy, scipy, matplotlib, pandas, scikit-learn), SQL, C, experience working with large (million object) data sets, data mining, data visualization, working knowledge of R, IDL (Interactive Data Language)

Experience

NSF Postdoctoral Fellow of Astronomy and Astrophysics

UC Santa Cruz, Santa Cruz, CA   2012-present

· Formulated a three year project plan to identify and analyze evolutionary trends in data sets comprised of millions of objects; Granted $267,000 of federal funding to independently pursue the proposed study
· Wrote SQL and Python scripts to parse, clean and combine data from multiple data sets
· Employed regression analysis to detect and measure statistically significant correlations in the data; Produced Python scripts to track the evolution of those correlations over time; Utilized boot-strapping to quantify background noise; Created plots to visualize highlighted results
· Developed side projects that stem from the main study; Modeled complex noise properties to tease out subtle but statistically significant features from the data
· Built and deployed a parser cleaner for an online academic job data base; Created a website to allow simple interactions with the cleaned data set

Research Assistant

Yale University, New Haven, CT   2006-2012

· Analyzed astrophysical data sets containing millions of data points in a high-dimensional space; Measured clustering and over-densities of source properties; Stacked data from tens of thousands of observations to improve statistical significance of results
· Developed and carried out an efficient statistical experiment to quantify varying noise levels using random sampling; Automated model fitting to uncover deviations from expected results
· Worked in a cross-functional team; Collaborated on tens of projects spanning a wide range of topics; Contributed to more than a dozen publications as a co-author
· Carried teaching assistant duties in five undergraduate classes; Held class sections and office hours

Data communication

· Presented results at more than a dozen conferences; The lead author of six refereed papers	2009-2014
· Mentored high school summer interns on Python scripting and regression analysis (UCSC)	2012
· Developed and presented general-audience and undergraduate lectures (Yale Planetarium)	2009-2010
· Organized and led weekly open public observing and Q&A nights (Yale student observatory)	2006-2010

Awards and Fellowships

National Science Foundation Postdoctoral Fellowship, NSF	2012-present
Highly prestigious national fellowship ($267,000), awarded yearly to nine out of hundreds of applicants	
NASA CT Graduate Research Fellowship, NASA CT Space Grant Consortium	2011-2012
Academic research scholarship ($20,000), awarded yearly to two students	
Beatrice Tinsley and Boris Garfinkel awards, Astronomy Department, Yale University	2007,2009
Awarded for best student research proposal and for extraordinary public communication work	
Undergraduate award for academic achievements, Ben Gurion University	2005