

## SUMMARY

Data Scientist with PhD in Astrophysics with 2 years post doctoral experience in academia (Data Analysis team of LIGO) and 3+ years of work experience in industry. 10+ years of successful research experience in both theoretical and computational physics. Strong problem-solving and leadership skills. Looking for new opportunities towards leading small technical, data-science teams.

Advanced programming proficiency. Certified and experienced in Machine Learning and Deep Learning. Self-motivated and fast-learner. Skilled in collaborations, process improvement, with the ability to translate deep technical ideas and new concepts across all organizational levels. Strong skills in prioritizing, organizing, and time management with strong verbal and written communication skills.

## HIGHLIGHTS

- 5+ years work experience in Data Analysis
- 20+ presentations in international conferences
- 50+ publications in top science journals
- Team lead experience

## WORK EXPERIENCE

### FULL TIME EMPLOYMENT

#### ○ **Bayer (Monsanto), St. Louis, MO [Data Scientist] (2017–Present)**

Through several Data Science projects, I helped to bridge from large scale research data (genomics and phenomics) to the commercial side, leading to improve plant breeding cycles and precision breeding. I built and evaluated product Recommender Systems to recommend the best product crops for a given set of field conditions and needs. I also led an initiative on building a broad documentation platform to facilitate knowledge-transfer across the teams within the organization. Within my role, I had the opportunity to successfully lead a small team of data scientists through their projects for 3 months.

#### ○ **Aclara Technologies, St. Louis, MO [Data Scientist] (2016–2017)**

Using different machine learning algorithms, I built and evaluated predictive models for residential electricity consumption based on historical data in combination with auxiliary forecasted weather data. In separate projects, I developed web-based platforms to fully visualize electric distribution networks (GIS) and anomaly detection via clustering algorithms. I had a major role in the development of Aclara Fault Detection and Localization's core algorithm (Bayesian Network & Information Theory) and all its data analysis.

#### ○ **ICTP-SAIFR, São Paulo, Brazil [Postdoctoral Research Fellow] (2013–2015)**

As a researcher/developer in Data Analysis team of LIGO scientific collaboration, I helped developing and testing various data analysis algorithms and signal processing pipelines. I designed and performed a comprehensive, complex computational analysis to quantitatively investigate the accuracy of gravitational-wave signal template models to be used in searches for extremely weak gravitational-wave signals from compact celestial objects such as black-holes and neutron-stars.

#### ○ **Washington University in St. Louis, MO [Research Assistant] (2009–2013)**

I did advanced research and teaching in the field of theoretical physics. In my dissertation, I obtained the equations of motion for compact binary objects such as black-holes under alternative theories of gravity beyond General Relativity. The results of this study are required by current gravitational-wave observatories such as LIGO to test fundamental laws of physics in strong gravitational field regimes such as in spaces near black-holes and neutron-stars.

### VISITING RESEARCH SCHOLAR

- **Caltech** Institute of Technology, Pasadena, CA (Mar 2015)
- **University of Wisconsin-Milwaukee**, Milwaukee, WI (Jan–Feb 2014 & Sep 2014)
- **University of Florida**, Gainesville, FL (Nov 2012 to Aug 2013)
- **Institut d'Astrophysique de Paris**, Paris (July–Sep 2012)
- **MIT** Kavli Institute, Boston, MA (Mar 2011)

---

## EDUCATION

- Ph.D. in Physics, Gravitation & Astrophysics, Washington University in St. Louis, MO (2013)
- M.Sc. in Physics, Gravitation & Astrophysics, University of Tehran, Iran (2008)
- B.Sc. in Physics, Solid State, University of Tehran, Iran (2005)

---

## COMPUTER SKILLS AND LANGUAGES

- Programming languages including **Python**, **R**, **MATLAB**, **C**, plus **Bash** and **SQL** [5+ years]
- Analytical and computational tools including **Maple** and **Mathematica** [3+ years]
- Web-based analytical tools including **RShiny** and **AzureML** [1+ years]
- Distributed computing via **HTCondor**
- Version control systems including **GIT**, **CVS**, and **TSF**
- Typesetting, documentation and report producing tools including **Sphinx** and **L<sup>A</sup>T<sub>E</sub>X**
- Full fluency in **English** and **Persian**, basic skills in **Arabic** and **Portuguese**

---

## CERTIFICATES IN DATA SCIENCE [MOOCs]

- **TensorFlow in Practice Specialization (2019)** including 4 courses: [1] Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning, [2] Convolutional Neural Networks in TensorFlow, [3] Natural Language Processing in TensorFlow, [4] Sequences, Time Series and Prediction. All offered by deeplearning.ai via Coursera [Workload: 4-weeks each course, Instructor: Laurence Moroney]
- **Deep Learning Specialization (2018)** including 5 courses: [1] Neural Networks and Deep Learning, [2] Improving Deep Neural Networks, [3] Structuring Machine Learning Projects, [4] Convolutional Neural Networks, [5] Sequence Models. All offered by deeplearning.ai via Coursera [Workload: 4-weeks each course, Instructor: Andrew Ng]
- **Machine Learning (2014-2015)** including 3 courses: [1] Data Science and Machine Learning Essentials; offered by Microsoft via edX [A 5-week online course, Instructors: Steve Elston and Cynthia Rudin], [2] Statistical Learning; offered by Stanford University via Dataschool.io [A 10-week online course; Instructors: Trevor Hastie and Robert Tibshirani], [3] Machine Learning; offered by Stanford University via Coursera [A 10-week online course, Instructor: Andrew Ng]
- **Data Science Toolbox (2014)** including 3 courses: [1] The Data Scientists Toolbox; offered by Johns Hopkins University via Coursera [A 4-week online course; Instructors: Roger Peng, Jeff Leek, Brian Caffo], [2] Getting and Cleaning Data; offered by Johns Hopkins University via Coursera [A 4-week online course; Instructors: Roger Peng, Jeff Leek, Brian Caffo], [3] R Programming; offered by Johns Hopkins University via Coursera [A 4-week online course; Instructors: Roger Peng, Jeff Leek, B. Caffo]

---

## AWARDS

- 2016 **Breakthrough Prize in Fundamental Physics**, *for the detection of gravitational waves*.  
The Breakthrough Prize recognizes the world's top scientists. Each prize is \$3 million and presented in the fields of Life Sciences (up to five per year), Fundamental Physics (up to one per year) and Mathematics (up to one per year).

*A Special Breakthrough Prize in Fundamental Physics was awarded to 1015 scientists and engineers contributing to the detection of gravitational waves announced in February of 2016.*

---

## VOLUNTARY ACTIVITIES

- 2019 **Data Science Teacher**, *CoderGirl*.  
CoderGirl is LaunchCode's education program designed to engage and educate women in the technology community in St. Louis.

*The program includes a 24-week data-science specialized track designed to equip CoderGirls with technical skills and job-readiness skills, leading up to a apprenticeship job program. CoderGirl provides a space for women of all skill levels to learn to code in a supportive community of like-minded individuals.*