

# Adrin Jalali

## Curriculum Vitae

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### Objective

To dedicate my time, experience and expertise in machine learning, algorithms, and programming, to projects that matter to people's well-being.

### Experience

#### Research Positions

2012-Present **Max Planck Institute for Informatics, Computational Biology and Applied Algorithmics Department**, Saarbrücken, Germany.

- Interpretable Sparse Methods for Cancer Associations (Python)
  - Interpretable per Case Weighted Ensemble Method for Cancer Associations: unlike conventional ensemble methods, in this work we introduced a weighting mechanism for the voting process over individual learners which adapts to each given test sample in order to compensate for the batch effects and noise in the data [2].

2011-2012 **British Columbia Cancer Research Center, Terry Fox Laboratory**, Vancouver, Canada.

- Automated Flow Cytometry Data Analysis (R)
  - Cellular hierarchy optimization for flow cytometry [3, 4]
  - Classification of samples into diffuse large B-cell lymphoma and follicular lymphoma using flow cytometry experiments
  - Search for chemotherapy resistant cell populations using pre- and post-therapy flow cytometry experiments
  - Characterization of heterogeneity in chronic lymphocytic leukemia

#### Professional Employment

2009-2011 **Kishware Software Group, R&D Department**, Tehran, Iran.

- Fraud detection in banks, *Project Manager* (C++, Java, Oracle, Microsoft BI)
  - Behavioral clustering of bank employees in time to detect major behavioral changes as anomalies.
  - Behavioral clustering of customers according to their debit card transactions in time to detect changes as potential fraud.
- Operational intelligence, *Project Manager* (C++, Oracle, MATLAB, Java)
  - Predict the terminal type of the next transaction of the customers using their transaction history.
  - Soft cluster customers according to their fuzzified transaction times and detect abnormal changes in cluster membership values.
  - Build a graph model to predict geographical location of terminals using customers' transaction history.

- 2008 **Orado Group**, Tehran, Iran.  
C# and T-SQL programmer in an educational/social network targeting Iranian secondary and high school students.
- 2006–2007 **Fidofa Software Group**, Tehran, Iran.  
  - Automatic trading system in futures stock market, *Programmer* (Matlab, C#)
    - Implementation of Markowitz modern portfolio theory.
    - Implementation of GARCH indicator for stock market price.
    - Optimize parameters of company's existing trading systems using a genetic algorithm.
- 2006 **Sourena Software Group**, Tehran, Iran.  
C# programmer in a Persian text to speech project.
- 2005 **Tarrah Sarv System**, Tehran, Iran.  
Delphi and T-SQL programmer in a system handling all personnel and factory processes of a chicken farm.
- [Other Experience](#)
- 2009 **University of Tehran**, *Mining Department*, Tehran, Iran.  
We used adaptive Neuro-Fuzzy Inference System in MATLAB to predict Compressional and Shear Wave Velocities in dam sites in south west of Iran using sparse samples taken from the site before construction of dams.
- 2006 **University of Tehran**, *Management Faculty*, Tehran, Iran.  
We developed a system to allow websites to have multiple structures to target different user groups according to their click-stream and product ratings. The system constructs structures offline, and later on these structures can be uploaded to be shown to users according to their behavior. The project targets websites that cannot afford the computational intensive processes of having a fully dynamic website. We designed a system including a singular value decomposition (SVD) method to fill in the rating missing values, as well as a genetic algorithm to find multiple website structures.
- 2005 **Tehran Polytechnic**, *Computer Engineering Department*, Tehran, Iran.  
Message passing and routing in ad-hoc mobile sensor networks. We designed a semi-random routing system focusing on the power usage of the routing protocol including the computations required and the messages passed. We used OMNet++ for our simulations.
- 2002–2005 **Tehran Polytechnic**, *Rescue Simulation League, Robotics Lab*, Tehran, Iran.  
*7th place, world cup 2002 Italy*  
*5th place, world cup 2005 Japan*  
 Fire brigades and police forces (C++)
  - Clustering of the buildings of the simulated world using self organizing map.
  - Program a strategy accordingly to find the best order of the buildings to be extinguished by fire brigades.

#### [Teaching Positions](#)

- 2011 **Lecturer**, *Introduction to Programming*, Department of Fundamental Sciences, University of Tehran, Tehran, Iran.

- 2006 **Teaching Assistant**, *Introduction to Graphics Programming in C*, Department of Mechanical, Civil, and Texture Engineering, Tehran Polytechnic, Tehran, Iran.
- 2006 **Teaching Assistant**, *Data Structures and Algorithms*, Department of Math and Computer Science, Tehran Polytechnic, Tehran, Iran.
- 2005 **Teaching Assistant**, *Compilers*, Department of Math and Computer Science, Tehran Polytechnic, Tehran, Iran.
- 2004 **Teaching Assistant**, *Micro Processors*, Department of Math and Computer Science, Tehran Polytechnic, Tehran, Iran.

## Education

- 2012–Present **PhD (cont.) in Computer Science/Bioinformatics**, *Max Planck Institute for Informatics, Computational Biology and Applied Algorithmics Department*, Saarbrücken, Germany,  
Supervisors: Dr. Nico Pfeifer, Prof. Dr. Dr. Thomas Lengauer,  
Dissertation Topic: Machine Learning in Cancer Diagnosis,  
Degree anticipated: May 2016.
- 2011–2012 **PhD in Bioinformatics**, *University of British Columbia, British Columbia Cancer Research Center, Terry Fox Laboratory*, Vancouver, Canada,  
Supervisor: Dr. Ryan Brinkman,  
Topic: Automated analysis of flow-cytometry data.
- 2006–2009 **MSc in Computer Science**, *University of Tehran, School of Mathematics, Statistics, and Computer Science*, Tehran, Iran,  
Supervisor: Dr. Abbas Nowzari-Dalini,  
Thesis Topic: Finding DNA Motifs Using Bidirectional Recurrent Neural Networks,  
GPA: 18.42/20.
- 2002–2006 **BSc in Computer Science**, *Tehran Polytechnic, Department of Mathematics, and Computer Science*, Tehran, Iran,  
Thesis Topic: Design and Implementation of a Genetic Algorithm to Solve Time Table of a School,  
GPA: 15.98/20.

## Service

- 2015 **Chemistry, Physics, and Technology Section Representative**, *PhDnet steering group*, Max Planck Society, Germany.
- 2012 **Bioinformatics Representative**, *College for Interdisciplinary Studies Graduate Student Society*, University of British Columbia, Vancouver, Canada.
- 2012 **“Bioinformatics” and “British Columbia Cancer Agency Graduate Student and Post Doctoral Fellow Society” representative**, *Graduate Student Society*, University of British Columbia, Vancouver, Canada.

## Computer Skills

**C++, C, Python, Linux**

Java, R, Matlab, T-SQL, PL/SQL

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## Languages

Persian **Native**  
English **Fluent**  
German **Intermediate (A2/B1)**

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## Publications

1. Courtot M., Meskas J., Diehl A. D., Droumeva R., Gottardo R., Jalali A., Taghiyar M.J., *flowCL: ontology-based cell population labelling in flow cytometry*, Bioinformatics 31, no. 8 (2015): 1337-1339.
2. Jalali A., and Pfeifer N., *Interpretable per Case Weighted Ensemble Method for Cancer Associations*, Algorithms in Bioinformatics, pp. 352-353. Springer Berlin Heidelberg, 2014.
3. O'Neill K.\*, Jalali A.\*, Aghaeepour N.\*, Hoos H.H., and Brinkman R.R., *Enhanced flow-Type/RchyOptimyx: A Bioconductor pipeline for discovery in high-dimensional cytometry data*, Bioinformatics (2014), doi: 10.1093/bioinformatics/btt770.
4. Jalali A.\*, Aghaeepour N.\*, O'Neill K., Chattopadhyay P.K., Roederer M., Hoos H.H., Brinkman R.R., *RchyOptimyx: cellular hierarchy optimization for flow cytometry*, Cytometry Part A 81, no. 12 (2012): 1022-1030.
5. Aghaeepour N., Chattopadhyay P.K., Ganesan A., O'Neill K., Zare H., Jalali A., Hoos H.H., Roederer M., and Brinkman R.R., *Early Immunologic Correlates of HIV Protection can be Identified from Computational Analysis of Complex Multivariate T-cell Flow Cytometry Assays*, Bioinformatics, 2012: 28(7):10091016.
6. Rezaei F.\*, Jalali A.\*, Memarian H., *Estimation of Compressional and Shear Wave Velocities using Adaptive Neuro-Fuzzy Inference System, in some of dam sites in south west of Iran*, Journal of the Earth, Tehran, Iran, 2009.
7. Behsaz B., Jalali A., Janzadeh H., Jouyandeh M.R., Molazem F., Rahimi A., Salehi A., and Tavakoli Ghinani M., *Team Description of S.O.S. 2005*, Proceedings CD RoboCup 2005, Osaka, Japan, 2005.
8. Tashakori M., Jalali A., Jooyandeh M.R., Gholami A., Behzadian A., Ghasemloo K., Esfahbod B., *Rayan Team Strategy Description*, Proceedings CD RoboCup 2004, Lisboa, Portugal, 2004.
9. Shiri M.E., Jalali A., Jooyandeh M.R., Roshandel Tavana R., Behzadi M., *AUTRescue Team Strategy Description*, Proceedings CD RoboCup 2003, Springer-Verlag, Padova, Italy, 2003.

\* co-authors contributed equally