

Kazem Jahanbakhsh

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SUMMARY

I received my PhD in computer science in which my research focus was designing unsupervised and supervised learning algorithms to predict the social interactions among groups of people in various social settings such as academic conferences and outdoor events.

Over the last six years, I have led several data science teams designing and implementing ML and NLP algorithms for various applications including: Online Fraud Detection, Online Advertising, Sentiment Analysis, Clustering Documents, Tagging Documents, Search Ranking, and Named Entity Recognition.

EDUCATION

PhD, Computer Science, University of Victoria, Canada 2007 - 2012
M.Sc., Electrical Engineering, Sharif University of Technology, Iran 2003 - 2005
B.Sc., Electrical Engineering, Sharif University of Technology, Iran 1998 - 2001

ACADEMIC AWARDS & HONORS

Ranked *3rd* in Canada & *44th* in the world in IEEEExtreme Programming Competition. 2011
University of Victoria Graduate Scholarship (\$30,000). 2007 - 2008
Ranked *50th* among 10,000 students in Iranian Graduate Studies Entrance Exam. 2003
Ranked *24th* among 300,000 participants in Iranian University Entrance Exam. 1997

WORK EXPERIENCE

CTO, Qudos, Vancouver 2015 - 2017

- Led a data science team working on a tagging system composed of a number of classifiers: KNN, Decision Tree, Naive Bayes, SVM. The system had to take companies unstructured data and return industry tags such as Technology, Advertising, Real Estate etc with high precision/recall.
- Supervised the design of a Linear Regression model to improve search ranking on Qudos B2B marketplace. The regression model had to incorporate a number of user filters for ranking such as industry, services, locations, size, awards, case studies, and social media metrics.
- My other responsibilities: product development, A/B testing landing pages, data scraping/cleaning/parsing, SEO, and online advertising.

Co-Founder, A.I. Optify, Vancouver 2014 - 2015

- Designed an ML model responsible to take a bid request from MoPub ad exchange and compute an optimal bid value.
- A Logistic Regression model was trained on a number of features (e.g. creative, day of week, time, user location, user interests, OS, app name, browser etc) to predict the conversion probability for an impression.
- A bid optimizer was implemented to compute an optimal bid value by taking into account the conversion probability and market dynamics in order to minimize the advertising cost. The ML tech stack was Python, Amazon EC2, S3, & Apache Spark.

Chief Data Scientist, Trulioo, Vancouver 2013 - 2014

- Analyzed 1.2 billion Facebook & Twitter profiles to identify significant positive and negative indicators to classify authentic and fraudulent accounts.
 - Engineered a number of features for classification such as account age, the user's friends graph connectivity distribution, profile/cover images, tweeting times distribution, inter-arrival tweeting times distribution, published contents and so on.
 - Designed and tuned a Rule-based Classifier to take into account the positive and negative indicators.
- Data Scientist*, Seeker Solutions, Victoria 2013
- Implemented Latent Dirichlet Allocation (LDA) model for extracting hidden topics from medical documents.
 - Feature engineering, implementing, and evaluating Hidden Markov Model (HMM) and Conditional Random Field (CRF) for tagging medical documents with rare classes such as DISEASE and TREATMENT.
- Data Scientist Consultant*, Red Brick Media, Victoria 2012
- Analyzing large historical advertising data (e.g. impressions & conversions) to design an optimization algorithm for optimal online ad selection.
 - Evaluating different versions of Multi-Armed-Bandit algorithms including epsilon-Greedy, UCB1, & Bayesian.
 - Customizing the exploration and exploitation parts of a UCB1 algorithm in order to maximize the generated revenue on the RBM affiliate network.
- Software Engineer Intern*, Proven, San Francisco, CA 2011
- Implemented Proven admin website using PHP & MySQL.
 - Implemented a simple Facebook app to connect job seekers to employers.
- Research Assistant*, University of Victoria, Canada 2007 - 2012
- Designed and implemented several unsupervised and supervised learning algorithms (i.e. Random Walk, Shortest Path, Social Similarity, KNN, Logistic Regression) to predict the social interactions among people in various environments such as academic conferences and outdoor events.
 - Empirical and theoretical analysis of the running time of several information spreading algorithms on the Facebook social graph.
- Network Engineer*, Patsa, Tehran 2006
- Worked on *Iran MPLS* project for redesigning the Internet backbone. Configuring *Sun* Servers and *Oracle* database servers. Installation & configuration of high end *Cisco* routers' management applications.
- Research Assistant*, Sharif University of Technology, Iran 2004 - 2005
- Designed and implemented a parallel algorithm in *C* to crack RSA-Keys using Message Passing Interface. The parallel code was running on a 17-nodes Linux Cluster where we could crack a 330-bit RSA key in less than 24 hours.
- Software Engineer*, Afranet, Tehran 2003 - 2005

- Implemented Sanjesh.org and Azmoon.com websites using *LAMP* technologies and Linux Clustering.
- Linux servers administration & configuration including *Apache*, *MySql*, and *Oracle* database servers.

PUBLICATIONS

- K. Jahanbakhsh and Y. Moon, The Predictive Power of Social Media: On the Predictability of U.S. Presidential Elections using Twitter, 2014, submitted to arxiv.
- K. Jahanbakhsh, V. King, G.C. Shoja, Predicting Missing Contacts in Mobile Social Networks, Elsevier Pervasive and Mobile Computing Journal, 2012.
- K. Jahanbakhsh, V. King, G.C. Shoja, Predicting Human Contacts in Mobile Social Networks using Supervised Learning, The Fourth ACM Annual Workshop on Simplifying Complex Networks for Practitioners, 2012, Lyon, France.
- K. Jahanbakhsh, V. King, G.C. Shoja, Empirical Comparison of Information Spreading Algorithms in the Presence of 1-Whiskers, Third IEEE International Conference on Social Computing, 2011, MIT, Boston, USA.
- K. Jahanbakhsh, V. King, G.C. Shoja, Predicting Missing Contacts in Mobile Social Networks, IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks, 2011, Lucca, Italy.
- K. Jahanbakhsh, G.C. Shoja, V. King, Human Contact Prediction Using Contact Graph Inference, The Third IEEE/ACM Conference on Social Computing, 2010, Hangzhou, China.
- K. Jahanbakhsh, G.C. Shoja, V. King, Social-Greedy: A Socially-Based Greedy Routing Algorithm for Delay Tolerant Networks, ACM/SIGMOBILE MobiOpp, 2010, Pisa, Italy.
- Y.O. Yazir, K. Jahanbakhsh, S. Ganti, G.C. Shoja, Y. Coady, A Low-Cost Realistic Testbed for Mobile Ad-hoc Networks, IEEE Pacific Rim Conference on Communications, Computers and Signal Processing, 2009, Victoria, British Columbia.
- M. Ghelichi, K. Jahanbakhsh, E. Sanaei, RCCT: Robust Clustering with Cooperative Transmission for Energy Efficient Wireless Sensor Networks, 7th International Conference on Information Technology : New Generations, 2008, Las Vegas, Nevada, USA.
- K. Jahanbakhsh, M. Hajhosseini, Improving Performance of Cluster Based Routing Protocol using Cross-Layer Design, 2008, submitted to arxiv.
- K. Jahanbakhsh, J. Papadopoulos, An efficient Parallel Implementation of Self Initialization Quadratic Sieve for Integer Factorizations Using Message Passing Interface (MPI), Proceedings of 14th Iranian Conference on Electrical Engineering, 2006, Tehran, Iran.

SOFTWARE RESEARCH PROJECTS

Machine Learning/Data Mining/NLP projects

2007 - Present

- *Predicting US 2012 Election*: a research project to predict US 2012 presidential election through sentiment analysis of a large number of tweets. This work was covered on Forbes.
- *Information Spreading*: an efficient C code for empirical analysis of information spreading algorithms on Facebook social graph.
- *Social-Sim*: a simulator written in *C++* for statistical analysis of mobile social graphs.

- *Human Contact Predictor*: a Python implementation of several unsupervised learning algorithms for predicting how people interact in social settings such as conferences.
- *Hometown Predictor*: an algorithm implemented in *Python* for predicting where a person lives by analyzing her Flickr photos. This work was covered on MIT Technology Review.
- *K-means Clustering*: a *Python* implementation of *K-means* clustering algorithm.
- *Community Detection*: a *Python* implementation of Girvan-Newman *community detection* algorithm for weighted social graphs.
- *Flickr Crawler*: a two-layer crawler in *Python* for collecting *Flickr* photos using Flickr API. The first layer crawls Flickr social graph while the second layer crawls Flickr users profiles and their uploaded photos tags.
- *Reliable Datagram Protocol*: a multi-threaded reliable application layer implemented in *C*. This application layer runs on top of UDP to make it reliable.
- *Soma Cube Puzzle*: *Java* code for solving 7-pieces Soma Cube puzzle by using a backtracking search.
- *Flying Blimp*: an embedded system developed in *C* for controlling an autonomous flying blimp.

**COURSES
TAKEN**

Data Mining (A+), Algorithmic Mechanism Design and Social Computing (A+), Randomized Algorithms (A+), Analysis of Algorithms (A+), Topics in Artificial Intelligence (A), Software for Embedded & Mechatronics Systems (A+), Wireless & Mobile Networks (A-), Communication Networks (A+), and Operations Research & Simulation (A+)

Activities

I enjoy playing soccer, chess, and cooking.