Research Interests

Database and IR Systems

Operating Systems

(File systems – Microkernels)

Concurrent Programming

(the "Actor Model")

Human-Computer Interaction

EDUCATION

Amirkabir University of Technology (Tehran, Iran) B.Sc. in Computer Science, 2014 (expected) GPA (last 60 CS credits): **16.5**/20

AWARDS AND HONORS

- **2nd place** at 13th International Data Mining Cup (Berlin) Our team created a bidding agent in Java for the "online" task, and used a combination of statistical models, neural networks and SVMs for predicting the results of the "offline" task.
- Ranked 590 (among ~400,000 participants) in 2008 National Matriculation Exam (top %0.2)

COMMUNICATION SKILLS

English Fluent

Persian Native speaker

German Basic understanding

TOEFL iBT		GRE GENERAL $(\underline{ ext{EXPECTED}}^*)$	
Reading	30	Verbal Reasoning	160+
Listening Speaking	29 22**	Quantitative Reasoning	170
Writing	28	Analytical	4+
Total	109	Writing	4+

^{*} Only the paper-based GRE test is administrated in Iran (results: $Dec 9^{th}$). The above table is my expected scores based on a few (official and ETS-provided) practice tests.

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Teaching Experiences

Teacher Assistant	
Database Design	(Winter '11)
Database Design	(Winter '12)
Artificial Intelligence	(Winter '12)
Database Design	(Winter '13)
Data Mining	(Spring '14)

I	Presenter	
	${\bf 4th~National~Linux~Festival} \\ {\bf Advanced~Unix~Command-line}$	(Spring '12)
	AUT-CEIT Computing Festival Introduction to Node.js	(Spring '12)
	AUT Database Workshop PostgreSQL vs. MySQL	(Spring '13)
	AUT Database Workshop Introduction to MongoDB	(Spring '13)
	AUT Database Workshop	(Spring '13)

TECHNICAL SKILLS

Basics of Neo4j and Redis

Programming Languages

Experienced: Java – Ruby – Objective-C – CoffeeScript Familiar: Scala - C - Erlang & Elixir - Scheme - PHP

Databases

Used extensively: MongoDB – PostgreSQL – Redis Used occasionally: Neo4j – MySQL – MS SQL Server

Server-side Web development

Experienced: Node.js - Ruby on Rails - PHP - Sinatra

Client-side Web development

Limited experience: Backbone.js - Ember.js

Miscellaneous

Source Control Management (git & hg) UNIXish tools (vi, awk, sed, etc.) nginx - WebKit - ANTLR - BDD - LATEX

^{**} I'm taking another iBT test (results: Nov 12th) to improve my score in the Speaking section.

NOTABLE PROJECTS

July 2011 – April 2012

Iran Telecommunications Research Center

Kavandeh Search Engine

Improving link-based Web page ranking algorithms in a Persian-only search engine, using various statistical and heuristic methods.

(Apache Nutch & Solr - WebKit - Java - C++)

March 2012 - June 2012

Visual WebPage Segmentation (VPS)

Detecting Web page structure with statistical analysis of the visual representation of the rendered page content, and using that structure for improving ranking algorithms in a search engine.

(Node.js - PhantomJS - MongoDB)

January 2011 – June 2011

Baygan Database

An extendable and clearly-modulated framework for introducing students to the intricacies of relational database design. Inspired by pintos.

(Java - ANTLR)

June and July 2010

Embedded Search Engine

A complete, single-purpose search engine (written from scratch), designed to use minimal RAM (60MB) for indexing and searching the English Wikipedia, as the final project for "Information Retrieval" course.

(Java)

OTHER PROJECTS

2010 - 2013

Open Source Contributions

Contributing to multiple Open Source projects (code, documentation, bug report, and IRC support), including PhantomJS, Ag (the silver searcher), hg-prompt, Kiwi, shadowsocks, fish shell, and Homebrew.

BetterDictionary

(Objective-C - Cocoa - Core Data)

MiniJava Parser

(CoffeeScript - jison - d3.js)

A Twitter Clone!

(Ruby on Rails - PostgreSQL - CoffeeScript - Sass)

Farhang (partial contribution)

(Objective-C - Cocoa Touch - Core Data)

Secure File System

(PHP - MongoDB)

Ad Server

(Ruby - Sinatra - SQLite)

Online Education

In addition to attending my normal classes, I have watched the videos, and finished the assignments, of a dozen freely-available online courses, including the following CS-related ones:

- MIT's legendary Structure and Interpretation of Computer Programs (1986 by Harold Abelson and Gerald Jay Sussman)
- UC Berkley's Operating Systems and Systems Programming (2008)
- Harvard's Introduction to Computer Science (2010) and Building Dynamic Websites (2010)
- Stanford's Programming Methodology (2007), Programming Abstractions (2008), Programming Paradigms (2008), and iPhone Application Programming (2013)

I'm also taking the following Coursera courses this semester:

- EPFL's Functional Programming Principles in Scala (2013 – by Martin Odersky)
- EPFL/Typesafe Inc.'s Principles of Reactive Programming (2013 – by Martin Odersky, et al.)

REFERENCES

Shahram Khadivi (Assistant Professor, Amirkabir University of Technology, Iran) http://ceit.aut.ac.ir/~khadivi/ - Email

For much of the past 3 years, I have been working closely with Dr. Khadivi on multiple projects (Kavandeh, VPS, Baygan), Berlin Data Mining Cup, and now my thesis project. I have also been a Teacher Assistant for two of Dr. Khadivi's courses (3 years for "Database Design" and one semester for "Data Mining").

More references are available upon request.