OZGUR (OSCAR) OZTURK

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OBJECTIVE: Senior Software Engineer Position

COMPUTER SKILLS

- Languages: C, C++ & STL & Boost, C++/CLI .Net 3.5, Java, Perl, R, MATLAB, Delphi, Scheme, Bash, XML & XPATH, XMPP, HTML, PHP, JavaScript, SQL, C#
- Tools: MS Visual StudioIDE, Eclipse IDE & Visual Editor Plugin, NetBeans IDE, GDB, CVS, Subversion, Perforce, gprof
- Operating Systems: Windows, UNIX, Linux
- Concepts: Object-oriented analysis and design, Design Patterns, Network Programming, Multitier Programming, Unit Testing, Regression Testing, Multithreaded Programming, Service Oriented Architecture, Extreme Programming

EXPERTISE & INTERESTS

- Databases, Data Mining, Data Warehousing, Information Retrieval, NLP, Bioinformatics, Microarray Data Analysis, Proteomics, Genomics, Statistical Analysis

WORK EXPERIENCE & PROJECTS

InfoBay, VentureLab, Georgia Institute of Technology, Atlanta, GA 2009-present

Senior Software Engineer, Principal Investigator

InfoBay Project: Social Network for Information Marketplace [*Client:* C++/CLI, .Net 3.5, C#, jabber-net library, XMPP (Extensible Messaging and Presence Protocol)] [*Server:* Boost ASIO, MySQL, MySQL Connector/C++, XMPP, openfire]

- Project PI and coauthor of NSF SBIR (Small Business Innovation Research) proposal.
- Responsible for all aspects of the software development lifecycle, including requirements analysis, design, implementation, documentation and maintenance.
- Responsible for design, implementation and administration of the server database.
- Responsible for setup and maintenance of server hardware and operating system.
- Responsible for selection of software components and libraries to use. For client side development, I selected C++/CLI, .Net, C# and Visual Studio. For server side development, I selected C++ Language, JDBC based Connector/C++ database API, and Boost Asio asynchronous I/O and socket programming libraries since efficiency and concurrent connection capacity are crucial for the server. I selected MySQL as the database management system for cost effectiveness and wide availability.
- Responsible for selection of development and production platforms. I selected SUSE Linux Enterprise Server as the server operating system for its price advantage and responsive customer support. As hardware, I selected a quad core server with gigabit Ethernet to be able to handle thousands of concurrent connections and a RAID setup consisting of four hot-swappable hard drives for data safety, easy recovery and parallel database operations.
- Designed and implemented an online presence and desktop messaging platform from scratch using .Net technologies on the client side and C++ boost libraries on the server side.
- XMPP-enabled my chat client using jabber-net C# library. Started using Openfire and Spark, open source XMPP server and client software with pluggable architectures. I am implementing our business logic as client and server plug-ins.

Oracle Corporation, Atlanta, GA 2008-2009

Senior Software Engineer

RPAS (Retail Predictive Application Server) [C++, Java]

- Worked on improvement & support of RPAS, business intelligence software used by retail corporations (WALMART, Macy's, etc.). Worked using standard, cross-platform C++, STL, and client-server architecture to communicate with a multi-dimensional, high-performance database.
- Analyzed and proposed improvements for the hard disk space footprint of hierarchy load process and implemented them. Reduced the footprint by 10%.
- Contributed to development of a Java-based web-client using Client-Bridge-Server architecture as an alternative to the C++ client.
- Written unit tests to verify compliance with technical specs.
- Modified the regression tests written in JScript and ran using Windows Script Host.
- Responded to software failures or performance issues reported by internal and external customers and fixed defects in multiple releases of the code.

Carnegie Institution, Department of Plant Biology, Stanford, CA 2007-2008

Postdoctoral Researcher

PlantCyc [PERL, Pathway Tools, BioJava]

- Initiated the development of PlantCyc; a reference database of plant metabolic pathways. It is planned to host PGDBs (Pathway Genome Databases) of all sequenced plant species.
- Expanded my understanding of metabolic pathways and Systems Biology.
- Did requirements analysis communicating with Biologists.
- Implemented programs that extract enzyme information from various flat file formats and resolve conflicting information to obtain a clean genome sequence database for Poplar Tree.
- Learned Pathway Tools Software to run cross-species sequence similarity analyzes to predict the biochemical pathways database for Poplar Tree.

Database Research Lab, OSU, Columbus, OH 2002-2007

Research Assistant

LFM-Pro: Local Feature Mining in Proteins [MATLAB]

- Developed and implemented feature extraction techniques to predict and represent important sites of proteins. Applied novel rotation & translation invariant synopses to better represent protein structures.
- Applied machine learning methods to develop weighted distance metrics on the synopses to represent local and global similarity of protein structures and used them to characterize features of protein families. Proved its success through high accuracy in family prediction experiments.
- Implemented 3-D protein structure visualization.

CoMRI: A Compressed Multi-Resolution Index for Similarity Searching in Large Scale Genomic Data [C++, Java]

- Developed a novel index structure and sensitive search algorithms for subsequence similarity queries of genomic sequences. Proposed an extension for protein sequences.

Data Mining on Heterogeneous Data [C++, Java]

- Developed data mining tools based on novel similarity definitions for time series data, and used it to analyze data from Columbus Children's Hospital's microarray (gene expression) experiments and Pfizer's clinical trials.

Computer Science and Engineering, The Ohio State University, Columbus, OH 2003-2007

Instructor/Teaching Assistant

- Instructed "Elementary Computer Programming" class in Spring 2007 with full responsibility. Served as teaching assistant for "Database Systems" and "Database Systems II", "Principles of Programming Languages", "Elementary Computer Programming", and "Computing Fundamentals in Context: Creative Interactive Media" classes.

Center for Spoken Language Understanding, OGI, Oregon Health & Science University, Portland, OR 2000-2002

Research Assistant

Prosody Generation and Pitch Contour Prediction System (C++, Edinburgh Speech Tools Library for Festival TTS toolkit) 2000-2001

- Implemented prosody model for more natural sounding speech synthesis.

Bilkent University, Ankara, Turkey 1999

Senior Project: Turkish Speech Synthesizer (Scheme, Festival Toolkit)

- Led the design and implementation of the first diphone-based Turkish Speech Synthesizer.
- Reviewed speech synthesis research and phonetics, vocabulary, and pronunciation of Turkish, planned recording sessions, produced diphone database using spectrogram reading, coded finite state machines for Natural Language Processing.

Information and Communication Technologies Research Institute, Scientific and Technical Research Council of Turkey, Kocaeli, Turkey 1999

Summer Intern

- Reviewed speech synthesis research literature. Initiated the development of an accessibility tool for the blind in Java.

Egemen Computer and Engineering, Ankara, Turkey 1998

Summer Intern

- Involved in the design and implementation of a GIS & CAD software for architectural design of city water sewerage infrastructures.

EDUCATION

PhD, Computer Science and Engineering, The Ohio State University, Columbus, OH 2002-2007

Dissertation Title: Feature Extraction and Similarity-Based Analysis for Proteome and Genome Databases

MS, Computer Science and Engineering, Oregon Health & Science University, Portland, OR 2000-2002

Spoken Language Systems

BS, Computer Engineering, Bilkent University, Ankara, Turkey 1996-2000

Full scholarship awarded for all undergraduate education.

REFEREED PUBLICATIONS

- *Building an Online Collaboration Platform Using XMPP and Open Source Software, Invited Tutorial Paper*, **O. Ozturk**, To be pProceedings of The 2010 International Symposium on Collaborative Technologies and Systems (CTS 2010), Chicago, Illinois
- *Combining Mining Results from Multiple Sources in Clinical Trials and Microarray Applications*, F. Altiparmak, **O. Ozturk**, S. Erdal, H. Ferhatosmanoglu, D.C. Trost. MMIS workshop, ACM International Conference on Knowledge Discovery and Data Mining 2007

- *Combining Mining Results from Multiple Sources in Clinical Trials and Microarray Applications*, F. Altiparmak, **O. Ozturk**, S. Erdal, H. Ferhatosmanoglu, D.C. Trost. MMIS workshop, ACM International Conference on Knowledge Discovery and Data Mining 2007
- *A Multi-Metric Similarity Based Analysis of Microarray Data,* F. Altiparmak, S. Erdal, **O. Ozturk**, H. Ferhatosmanoglu, The IEEE International Conference on Bioinformatics and Biomedicine (BIBM), 2007
- *LFM-Pro: A Tool for Detecting Significant Local Structural Sites in Proteins*, A. Sacan, **O. Ozturk**, H. Ferhatosmanoglu and Yusu Wang, **Bioinformatics**, 23(6):709-716, 2007.
- *Information Mining over Heterogeneous Microarray and Clinical Data*, F. Altiparmak, **O. Ozturk**, S. Erdal, H. Ferhatosmanoglu and D. C. Trost, OCCBIO and CSB 2006.
- *Vector Space Indexing for Biosequence Similarity Searches*, **O. Ozturk** and H. Ferhatosmanoglu, International Journal on Artificial Intelligence Tools, Vol. 14 no:5, October 2005, pp. 811-826.
- *A Novel Approach to Time Series Analysis of Microarray Data.* S. Erdal, **O. Ozturk**, D. Armbruster, H. Ferhatosmanoglu and W. C. Ray. IEEE International Symposium on Bioinformatics and Bioengineering (BIBE '04), pp. 366-378.
- *CoMRI: A Compressed Multi-Resolution Index Structure for Sequence Similarity Queries.* H. Sun, **O. Ozturk** and H. Ferhatosmanoglu. IEEE Computer Society Bioinformatics Conference (CSB '03). Stanford, CA. August 2003, pp. 553-558.
- *Effective Indexing and Filtering for Similarity Search in Large Biosequence Databases.* **O. Ozturk** and H. Ferhatosmanoglu. IEEE International Symposium on Bioinformatics and Bioengineering (BIBE '03), pp. 359-366. Washington, DC. March 2003.

TALKS

- *Tutorial: Building an Online Collaboration Platform Using XMPP and Open Source Software*, **O. Ozturk**, The 2010 International Symposium on Collaborative Technologies and Systems (CTS 2010)

GRANT PROPOSALS

- *Cyber-Enabled Trusted Service Exchange Networks*, Y. Altunbasak, F. Fekri, **O. Ozturk** (Principal Investigator), NSF Industrial Innovation and Partnerships Division, Small Business Innovation Research Phase I Application, 2009

HONORS

- **Outstanding Graduate Student Award** from The Ohio State University for "outstanding contributions in the areas of leadership, scholarship, and service".
- Refereed for IEEE BIBE, IEEE ICDE, ACM SAC, ACM KDD, DASFAA conferences, and IEEE TKDE and DKE journals.
- Ranked 125th among 1.5 million students at University Entrance Examinations of Turkey.
- Member of IEEE, ACM SIGMOD, SIAM.
- Full scholarship awarded for all undergraduate education.
- Competed in the Biology Olympiad Elimination representing my high school.

VOLUNTEER ACTIVITIES

Cofounder of "Students For Dialogue" student group, OSU, Columbus, OH 2002-2007

- SFD organizes activities fostering diversity and intercultural dialogue.

Participation in "Horizon Program" as a weekly visitor for inmate rehabilitation, Marion Correctional Institute, Marion, OH 2003-2004

Tutoring a group of underprivileged, minority students for ACT Science Reasoning Test, OMSI "Ohio Math and Science Initiative", Columbus, OH 2005

LANGUAGES

- Native Turkish, Fluent English, un poquito de Español, und ein bisschen Deutsch

REFERENCES

Mehdi Khosravi, PhD Manager at Oracle	404 610-7067	mehdi.khosravi@oracle.com
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Srinivasan Parthasarathy, PhD Instructor of Data Mining course I took and Database Systems courses I assisted	614 688-4965	srini@cse.ohio-state.edu
Umit V. Catalyurek, PhD Instructor of Bioinformatics I & II courses	614 688-4965	umit@bmi.osu.edu
Yusu Wang Research Collaborator	614 292-1309	yusu@cse.ohio-state.edu
Wayne D. Heym, PhD Instructor of a programming course I assisted	614 247-6803	w.heym@ieee.org