Hasan Timucin OZDEMIR

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Education

SYRACUSE UNIVERSITY — Syracuse, USA
Ph.D. in Computer and Information Science, Expected in 1999, (GPA = 3.92/4.0).

SYRACUSE UNIVERSITY — Syracuse, USA
M.S. in Computer and Information Science, May 1996, (GPA = 3.91/4.0).

HACETTEPE UNIVERSITY — Ankara, Turkey
B.S. in Computer Science, July 1991, (GPA = 3.33/4.0, Class Rank=4/54)

Experience

NORTHEAST PARALLEL ARCHITECTURES CENTER(NPAC) AT SYRACUSE UNIVERSITY — Syracuse, USA
May 1997– present
Research Assistant. Working on the CORBA Java/RTI, JWORB(HTTP+ORB), and WebFlow projects.

SYRACUSE UNIVERSITY — Syracuse, USA
August 1996– May 1997
Teaching Assistant, responsible for graduate level *Computer Architecture* course during Fall 96 and *Object Oriented Programming With C++* during the Spring 97.

HACETTEPE UNIVERSITY — Ankara, Turkey
January 1992–August 1994
Research and Teaching Assistant, responsible for Database Laboratory, Microprocessors Laboratory, Digital Systems Laboratory and Software Courses for undergraduate students.

BILTEK Co. — Ankara, Turkey
August 1989–August 1991
Part time employee as a programmer.

Software/Hardware Background

Experience on UNIX, IRIX, WINDOWS NT, AOS/VS, DOS.

Java, C++, C, Pascal, FORTRAN 77, Smalltalk/V, COBOL, INTEL 8086/8088, INTEL 8080A/8085, BASIC.

VRML, HTML, XML, XSL, DOM, Java Script, Perl, Servlet and CGI Programming.

Distributed object computing with CORBA (on OrbixWeb, Orbix C++, JavaIDL, and omniORB2), Java RMI, and COM/DCOM.

Familiar with various Java based technologies: JavaBeans, EJB, Swing/JFC, and JNI.

Some experience on SQL, Oracle, and Progress.

Sun Workstations, PC's, SGI O2, Data General MV/10000, Avion, DECmpp and Intel iPSC860.

MS Word, Power Point, Latex, and FrontPage.

Conference Publications

"Using WebHLA to Integrate HPC FMS Modules with Web/Commodity based Distributed Object Technologies of CORBA, Java, COM and XML", *1999 Advanced Simulation Technologies Conference (ASTC'99)*, April 11-15, 1999 Hyatt Islandia, San Diego, California. [with G.C.Fox, W. Furmanski, G. Krishnamurthy, Z. Odcikin-Ozdemir, T. A. Pulikal, K. Rangarajan, A. Sood]

"WebHLA - An Interactive Multiplayer Environment for High Performance Distributed Modeling and Simulation", *1999 International Conference On Web-Based Modelling & Simulation (WEBSIM'99), part of 1999 Western MultiConference (WMC'99).* [with G.C.Fox, W. Furmanski, S. Nair, Z. Ozdemir and T. Pulikal]

"WebHLA - An Interactive Programming and Training Environment for High Performance Distributed FMS", *Simulation Interoperability Workshop (SIW Fall 98).* [with G.C.Fox, W. Furmanski, S. Nair, Z. Ozdemir and T. Pulikal]

"HPcc as High Performance Distributed Computing on top of integrated Java, CORBA, COM and Web standards", in Proceedings of the EuroPar98 Conference, Southampton, U.K., September 1-4, 1998. [with G. C. Fox, W. Furmanski, T. Haupt, and E. Akarsu]

"Java/CORBA based Real-Time Infrastructure to Integrate Event-Driven Simulations, Collaboration and Distributed Object/Componentware Computing", *International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'98), Las Vegas, Nevada, July 13-16, 1998* [with Geoffrey C. Fox and Wojtek Furmanski]

"From JavaBean to Database Web Servers in the Pragmatic Object Web", keynote talk presented by G. C. Fox at the Internet Server Performance Workshop, Madison, Wisconsin, June 23, 1998. [with G. C. Fox and W. Furmanski]

"Object Web (Java/CORBA) based RTI to support Metacomputing M&S", *International Test and Evaluation Association Workshop (ITEA'98)* [with G.C.Fox and W. Furmanski]

"WebHLA - An Interactive Programming and Training Environment for High Performance Modeling and Simulation", *DoD HPC 98 Users Group Conference* [with D. Bernholdt, G. C. Fox, W. Furmanski, B. Natarajan, Z. Odcikin Ozdemir and T. Pulikal]

"Exploring JSDA, CORBA and HLA based MuTech's for Scalable Televirtual (TVR) Environments", *the Workshop on OO and VRML in the VRML98 Conference, Monterey, California on Feb 16-19,1998.* [with D. Dias, G. Fox, W. Furmanski, V. Mehra, B. Natarajan, S. Pallickara, Z. Ozdemir]

"A Digital Image Processing Subsystem For Semi Automated Karyotyping", *International Symp. on Computer and Information Science,* Antalya, Turkey, (November 7-9, 1994). [with Z. Odcikin, U. Karakas, M.S. Beksac and N. Cakar]

"Design and Implementation of Semi-Automated System for Fetal Head Images", *11th Informatique Conference of Turkey,* Istanbul, Turkey, (Sept. 14-17, 1994) in Turkish. [with Z. Odcikin and U. Karakas]

Technical Reports

"Parallel and Metacomputing Support for CMS - Comprehensive Minefield Simulation, Demonstration Handout", SuperComputing 98, Orlando, FL, November 7-13, 1998. [with D. Bernholdt, P. Chappell, G. C. Fox, W. Furmanski, D. Kasthuril, G. Krishnamurthy, S. Nair, Z. Odcikin Ozdemir, K. Rangarajan and K. Snively]

"New Systems Technologies and Software Products for HPCC: Volume III - High Performance Commodity Computing on the Pragmatic Object Web", *Technology Assessment Report for RCI, Ltd., October 1998* [with Geoffrey C. Fox and Wojtek Furmanski, and S. Pallickara]

"Integrating Web, Desktop, Enterprise and Military Simulation Technologies To Enable World-Wide Scalable Televirtual (TVR) Environments", *NPAC TR 1998* [with Geoffrey C. Fox and Wojtek Furmanski,B. Natarajan, Z. Odcikin Ozdemir, S. Pallickara and T. Pulikal]

"Building Web/Commodity based Visual Authoring Environments for Distributed Object/Component Applications - A Case Study using NPAC WebFlow System", *NPAC TR 1998* [with E. Akarsu, G.C.Fox, W. Furmanski, T. Haupt, Z. Odcikin Ozdemir, S. Pallickara and T. Pulikal]

"JWORB - Java Web Object Request Broker for Commodity Software based Visual Dataflow Metacomputing Programming Environment", *NPAC TR 1998* [with Geoffrey C. Fox and Wojtek Furmanski]

"Genetic Algorithms and Applications", *Hacettepe University Technical Report,* (1992). [with Z. Odcikin]

"MYDEARBABY Project Report: Expert System that monitorizes Fetal Heart Rate", *Hacettepe University Technical Report,* (1991). [with Z. Odcikin and U. Karakas]

Presentations

"Parallel and Metacomputing Support for CMS - Comprehensive Minefield Simulation", SuperComputing 98 Demonstration, Orlando, FL, November 7-13, 1998. [with Z. Odcikin Ozdemir] To be published in ASC MSRC Journal.

"Java/CORBA based Real-Time Infrastructure to Integrate Event-Driven Simulations, Collaboration and Distributed Object/Componentware Computing", *International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'98), Las Vegas, Nevada, July 13-16, 1998*

"Exploring JSDA, CORBA and HLA based MuTech's for Scalable Televirtual (TVR) Environments", *the Workshop on OO and VRML in the VRML98 Conference, Monterey, California on Feb 16-19,1998.*

Selected Projects

Genetic Algorithms for Transportation Problems (PhD Study) May 1997-present

Genetic Algorithms are promising solution technique for Multiobjective NP-Hard and NP-Complete problems. A graph based representation with GA is under study for Airline Crew Scheduling. Similar technique is applicable to Bus Driver Scheduling, Vehicle Scheduling, etc. problems in Transportation industry. Current work includes:

- GA for Airline Crew Scheduling, accepts a regular flight table and produces rotations,
- GA for Set Cover Problem with various genetic search operators and fitness evaluation techniques,
- GA for Column Generation.

Java Web Object Request Broker (JWORB) September 1997-present

JWORB is an extensible multi-protocol server written in Java. JWORB supports IIOP (for CORBA) and HTTP protocols. HTTP implementation supports:

- CGI 1.1,
- Sun Servlet API,
- DOM 1.0 first part,
- XML and XSL processors (obtained from free available codes).

CORBA implementation supports:

- IIOP 1.0
- Naming Service
- Event Service

Object Web Runtime Infrastructure (OWRTI) May 1998 - September 1998

Runtime Infrastructure (RTI) is a new distributed interactive simulation standard promoted by Defense Modeling and Simulation Office (DMSO). High Level Architecture (HLA) replaces the current DIS (Distributed Interactive Simulation) standard (IEEE 1278.1). RTI defines a set of services including Time Management, Data Distribution Management, Object Management, Federation Management, Declaration Management, and Ownership Management. OWRTI is implemented in Java based on CORBA distributed object technology. An adoption process by OMG and standardization process in IEEE are started in 1998.

Java Distributed Interactive Simulation (JDIS) September 1998-present

Java Distributed Interactive Simulation (JDIS) tool is implemented for monitoring the performance of the Parallized Comprehensive Mine Simulation program on Origin2000.

JDIS tool also includes the following features:

- record the on going simulation and play back.
- submit the on going simulation in XML format to a servlet to be recorded in a database.
- gateway between DIS talking entities on top of RTI.
- displays the Protocol Data Unit (PDU) traffic on the DIS session.

Current work on JDIS tool is to make it a gateway between HLA and DIS simulations. JDIS will be a service on JWORB so that simulations living in two different worlds (DIS and HLA) can interact with each other seamlessly.

WebFlow May 1997-present

WebFlow is an object based data flow system for distributed computing. WebFlow allows user to compose compute graphs visually. Each module in the graph may run on different servers (location transparency). Early work used Sun Servlet mechanism and JNI for invoking external parallel programs. Current work on WebFlow tries to bring seamless integration of CORBA, DCOM, and Java Objects, UML based compute graph definition for the front end, and XML based visual and interface definition for the WebFlow modules.

Implementation of CORBA Event Service for omniORB2
October 1997–December 1997

This project combined the VRML, DIS, and CORBA technologies to define a multi user environment on the Web with 3D front end. VRML is used for 3D technology, Distributed Interactive Simulation PDUs are used as a message format, and CORBA Event Service is used for transport layer. Multi-threaded Event Service is written in C++ on omniORB2 that is a CORBA ORB written by Olivetti and Oracle Research.

DIS PDU Data Visualizer on the WEB August 1997 – November 1997

This project combined the VRML, DIS, Servlet, and Database. A Java and VRML based query and 3D display windows are defined to be able to conduct various database queries and statistics on the recorded DIS sessions. VRML is used to visualize the result.

JobShop Scheduling February 1997 – April 1997

JobShop scheduling problem is solved with Genetic Algorithm based optimization program. This project used the Fuzzy Rules to change the value of GA parameters.

Implementation of Neural Network Algorithms February 1996 – August 1996

A various supervised and unsupervised learning algorithms with graphical user interface are implemented for *Elements of Artificial Neural Networks*, K.Mehrotra, C.K.Mohan, and S.Ranka, Published by MIT Press, 1997

Image Processing Tool June 1995 – August 1995

A basic Image Processing Tool is designed and implemented in C++ by using Motif library. Tool contained basic local filters, the histogram based enhancement techniques, and edge detectors.

Visible Human Viewer September 1995 – December 1995

This project provided a support for building 3D representation from the 2D Visible Human data set. The tool supported the followings:

- region cut,
- simple classifier,
- Z-Buffer implementation for visualization.

Semi Automatic Karyotyping System February 1993 – August 1994

Karyotyping is processing chromosome images and classifying them. This project is composed of the following steps:

- processing images for enhancement: various local, histogram based, adaptive enhancement operators are implemented.
- object extraction: includes edge detection and sometimes human guidance is required to be able to extract the objects from the scene correctly.
- feature extraction: a set of features are obtained from the image of each object.
- classification: clustering the chromosomes to the right classes.

A Credit Risk Assessment with Back Propagation Learning Algorithm
February 1992 – May 1992

This project used the BP algorithm to evaluate the risk value of customer looking for a loan based on the customer profile information and the amount of requested load.

School Automation System December 1990 – July 1991

This project tried to automate the School systems with the following components:

- Databases for students, teacher, and courses.
- Database for question banks for each subject. A capability to prepare an exam from this bank.
- Evaluation with scanner so that test results can be obtained very quickly and entered into student records.
- A simple scheduler for teachers.

References Prof. C. Krishna Mohan, mohan@top.cis.syr.edu

Prof. Kishan Mehrotra, kishan@top.cis.syr.edu

Prof. Geoffrey Fox, gcf@npac.syr.edu

Dr. Wojtek Furmanski, furm@npac.syr.edu

Professional Societies
IEEE, Student Member (since 1993)

ACM, Student Member (since 1994)

Activities A Graduate Student Representative on College Tenure and Promotions Committee (Fall 1998 and Spring 1999)