

Cristian Francu

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Areas of interest

Music Information Retrieval, Digital Libraries, Machine Learning, Communication Systems, Algorithms Complexity

Education

Currently in the Ph.D. program, Department of Computer Science, Rutgers University, NJ

MS, Department of Computer Science, Rutgers University, NJ

MS, Department of Computer Science, Polytechnic University of Bucharest

BS, Polytechnic University of Bucharest, major in Computer Science

Research Experience

9/99–8/00: Research Assistant, Department of Computer Science, Rutgers University

9/96–9/99: Research Assistant, Center for Advanced Information Processing, Rutgers University

5/98–8/98: Summer Researcher, NEC, CCRL, Princeton NJ

- Implementing the C++ mapping of CORBA—Delegation Model vs. Inheritance Model
- Automatic porting of legacy applications to CORBA using Delegation Model

Teaching Experience

9/95–8/96: Teaching Assistant at Polytechnic University of Bucharest for the following courses:

- Formal Languages and Compilers
- Introduction to Artificial Intelligence
- Data Structures and Algorithms

2/93–8/96: Instructor at Youth Club, Bucharest for the Algorithms and Pascal Language course. I worked with gifted teenagers, preparing them for the National Programming Contest.

Work Experience

6/00–8/00: Summer Intern Engineer, Gigabeat, Inc. Palo Alto CA

- Media processing and feature extraction in MIDI files

6/95–5/96: part-time Computer Programmer at MITh, Bucharest

Honors and Awards

Waksman Institute of Microbiology, Rutgers University Scholar, 2000–2001

Rutgers Distributed Laboratory for Digital Libraries Scholar, 1999–2000

Ranked 9th at the ACM Programming Contest, Eastern European stage

Ranked 1st at the National Programming Contest, during my undergraduate studies in Romania.

Publications

Francu, C. & Nevill-Manning, C.G. (2000) "Distance metrics and indexing strategies for a digital library of popular music," *IEEE International Conference On Multimedia And Expo*.

Francu, C. & Marsic, I (1999) "An Advanced Communication Toolkit for Implementing the Broker Pattern," *19th IEEE International Conference for Distributed Computing Systems*, 458–467.

Francu, C. (1996) "Source Code Compression Using Context Free Grammars" *M.S. dissertation*.

Francu, C. (1996) "Data Compression Using the Shannon-Fano Method," *Computer Science Journal no. 2*. May 95, 23-28

Francu, C. (1996) "Hidden Lines Representation of Convex Objects," *Computer Science Journal no. 1*. April 95, 36-42

Francu, C. (1995) "Data Compression Using the Huffman's Static Algorithm," *PC Report Magazine no. 8* (Romanian Journal) no. 35 Aug. 95 69-71

Books

Florea, A., Dorohonceanu, B., and Francu, C. (1997) "PROLOG Programming," *Politehnica University Printing House*.

Software Projects

"Web Search Engine," Information Retrieval and Data Compression class, 2000

A search engine using index compression, document compression, and TFIDF ranked retrieval

"Compression-Based Text Categorization," Machine Learning class, 1998

A K-Nearest Neighbor text classifier based on LZ77 compression distance function

"Event Replication in Collaboration Bus," CAIP Center, 1998

A Collaboration-Enabling Framework where Java Beans can be plugged in "as is" and made collaborative. The framework uses IP multicast for event and data replication.

"Reversi Internet Client and Server," Software Engineering class, 1998

A server and client built using CORBA and Java, for playing reversi game

"Building a CORBA ORB using ACT," CAIP Center, 1997

I developed ACT-ORB, a fully CORBA 2.0 compliant ORB built in Java, including SII, IIOP, Naming Service

"OMG IDL Compiler for ACT ORB," CAIP Center, 1997

I built a compiler for ACT-ORB, using JavaCC and Java. The compiler is now part of the ACT-ORB

"An Advanced Communication Toolkit," CAIP Center, 1996

ACT is a general toolkit that can be used to build a large class of communication systems. It provides various high-level communication protocols, multi-threading policies and data marshaling

"3D Human Figures Modeling Using Natural Language Descriptions," BS Diploma, 1995

Software Tool Expertise

Highly proficient with

- Java (3 years), C, C++, Pascal and Prolog (14 years)
- CORBA (Common Object Request Broker Architecture), IIOP (3 years)
- Compiler compilers as Lex and Yacc (5 years), JavaCC (3 years)

Experienced with

- UNIX system and network programming (4 years)
- LaTeX (3 years)

Languages

English, Romanian

Programming languages:

Java, C and C++, PASCAL, PROLOG, LISP, SCHEME, ML, CORBA, x86 Assembler, FORTRAN, BASIC, SQL, FoxPro

Hobbies

Exotic Plants, Computer Games, Music, Ski, Karate, B&W photo processing

References

Prof. Craig Nevill-Manning

Prof. Ivan Marsic

Dr. Maximilian Ott

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