Ana-Maria Vişan

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Objective

- To secure an **Full-time** position starting from **June 2012**.

Education

Northeastern University, Boston, MA — Fall 2006 - *Expected May 2012*

- Ph.D. student in Computer Science, GPA: 3.917 / 4.0
- Thesis Title: "Temporal Meta-Programming: Treating Time as a Spatial Dimension"
- Advisor: Prof. Gene Cooperman (leads the High-Performance Computing Lab)
- Research Interests: Reversible Debuggers, Debuggers, Deterministic Replay, Checkpointing, Operating Systems, Parallel and Distributed Computing, High-Performance Computing

Politechnica University of Bucharest, Bucharest, Romania — Fall 2001 - Summer 2006

- B.Sc. in Computer Science, GPA: 3.728 / 4.0

Work Experience

Joint Institute for Computational Sciences — May-August 2011
Research Intern, Oak Ridge, TN

- Worked on reversibly debugging MADNESS (Multiresolution ADaptive NumErical Scientific Simulation), a general purpose parallel programming environment.

Google — May-August 2010
Site Reliability Engineer Intern, Zurich, Switzerland

- Developed a proxy, a profiles collector and profiles analyzer, for the Geo-SRE group.

Bloomberg LP — June-August 2009
Software Development Engineer Intern, New York City, NY

- Redesigned and implemented 3 internal tools ($\sim$ 10,000 LOC Pascal) in C++ and JavaScript, for the Mortgages CMO Group.

NetApp Inc. — May-August 2008
Software Development Engineer Intern, Sunnyvale, CA

- Designed, implemented and integrated an increase to the number of snapshots stored to disk, by a factor of 10, for the WAFL File System Group.

Northeastern University — Fall 2006 - Present
Research Assistant, College of Computer and Information Science

- Researched and developed techniques for checkpointing entire GDB sessions, adding reversibility to existing debuggers and deterministically replaying multithreaded applications.

Instructor of Record, College of Computer and Information Science

- Undergraduate level: Computer Science and its Applicatios, Discrete Structures

Teaching Assistant, College of Computer and Information Science

- Graduate level: Network Security, Wireless Networks
- Undergraduate level: Computer Science and its Applications, Discrete Structures

Politehnica University Bucharest — Spring 2006
Teaching Assistant, Computer Science Faculty

- Undergraduate level: Data Structures in C/C++

Publications

- "URDB: Universal Reversible DeBugger", A.M. Visan, K. Arya, G. Cooperman, T. Denniston, PLOS'11.
- "FReD: Automated Debugging via Binary Search through a Process Lifetime", A.M. Visan, K. Arya, T. Denniston, G. Cooperman, *paper in preparation.*

Research / Projects

FReD: Fall 2010 - Present

- Designed and implemented FReD (Fast Reversible Debugger), a new system that uses temporal search automatically over the process lifetime to rapidly travel back in time to an earlier point of interest. FReD supports multithreaded applications.
- Two important components of FReD are deterministic replay and checkpointing. Deterministic replay is a prerequisite for such a system. Checkpoints are used to speed up the search.

URDB: Fall 2009 - Spring 2010

- Designed and implemented URDB (Universal Reversible DeBugger), a reversible debugger, based on multiple checkpoints, history of debugging commands, restart and re-execute. Decomposing the history of debugging commands is a requirement for such an approach.
- URDB adds reversibility to the debuggers: gdb; MATLAB; python (pdb); and perl (perl -d).

DMTCP: Spring 2008 - Present

- Developed code for DMTCP, a transparent user-level distributed checkpointing package, that requires no kernel patches and no kernel modules.
- The computation can later on be restarted from the checkpoint image, in the event of a node/process failure.

Large Space Enumeration Problems Using Disk as a Primary Storage: Fall 2007 - Spring 2008, Spring 2009

- Developed a new approach to direct condensation that uses disk as the primary storage.
- The disk-based approach produces condensation matrices for the sporadic simple Janko Group J_4.

Skills

- **Languages**: Assembly, C, C++, JAVA, SQL, Python
- **Platforms**: Linux, Windows
- **Others**: MPI, TCP/IP, Sockets, Posix Threads

Graduate Coursework

- Intensive Computer Systems • Advanced Algorithms • Parallel Computing • Wireless Networks • Information Retrieval • Data Mining • Principles of Programming Languages • Theory of Computation • Compilers