Zoran Dzunic

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EDUCATION

Massachusetts Institute of Technology **Cambridge, MA**
PhD candidate, Electrical Engineering and Computer Science *2010 – Present*
Topic: Bayesian Structure Inference and Interaction Analysis, Advisor: John Fisher

Courses: Machine Learning, Natural Language Processing, Inference and Information, Nonlinear Optimization, Randomized Algorithms, Programming Languages; Finance Theory, Analytics of Finance

Massachusetts Institute of Technology **Cambridge, MA**
S.M., Electrical Engineering and Computer Science *2009*
Topic: Text Structure-Aware Classification, Advisor: Regina Barzilay

University of Nis **Nis, Serbia**
B.A., Electrical Engineering and Computer Science *2005*

RESEARCH AND WORK EXPERIENCE

MIT, Sensing, Learning and Inference Group **Cambridge, MA**
Research Assistant, working with John Fisher *2010 – Present*

Developed a novel framework for fully-Bayesian switching interaction analysis under uncertainty that efficiently reasons over latent time-series, a super-exponential space of interactions and the switching pattern. Applied to interaction analysis of climate indices, moving objects, games (soccer), and financial time-series, as well as for structural heath monitoring (damage detection).

Mitsubishi Electric Research Laboratories **Cambridge, MA**
Research Intern, working with Jonathan Yedidia *Summer 2010*

Optimized spacecraft trajectories using a graphical model approach and the "Divide and Concur" algorithm.

Microsoft Research **Redmond, WA**
Research Intern, Internet Services Research Center, working with Paul Hsu *Summer 2009*

Improved user cold-start webpage access prediction using multi-domain learning techniques.

MIT, Natural Language Processing Group **Cambridge, MA**
Research Assistant, working with Regina Barzilay *2007 – 2009*

Developed a probabilistic model for simultaneous document classification and latent segment relevancy determination.

Accordia, LLC **Nis, Serbia**
Software Developer, Data Mining Team *2005 – 2006*

Developed a rule-based method for parsing syntax-free queries for a financial database that significantly simplified the search process. Combined edit distance algorithm with prefix tree data structure for efficient approx. string search. Implemented a system for online relation extraction.

SKILLS

Programming

Matlab, C/C++, C#, Python, Java, Lua; (*course-level*) Lisp, SQL, XML, Assembly, VHDL, Web

Languages

English (fluent), Serbian (native), German (basic)

TEACHING AND MENTORSHIP

Teaching Assitantship

Machine Learning (Fall 2008) – supervised student final projects, taught weekly recitations and held office hours, graded problem sets and exams.

Introduction to Algorithms (Fall 2009) – taught weekly recitations and held office hours, developed new homework and exam problems, graded problem sets and exams.

Supervision

Supervised a master's thesis student working on an online nonparametric algorithm for interaction analysis and its application to financial data; implemented on top of my codebase.

Supervised an undergraduate researcher working on an annotation tool for interaction analysis.

Programming Contests

Coached MIT ACM team to 2^{nd} place in 2008 World Finals and 7^{th} place in 2009 World Finals.

Authored a problem for the 2001 International Olympiad in Informatics and numerous problems for national programming contests; coached students for the international contest.

HONORS AND AWARDS

Awards – Best student award (1^{st} out of 400) and Nikola Tesla national award (3 recipients nationally) while at the University of Nis.

Fellowships – Kingdom of Norway, Ministry of Science, City of Nis, and several other national and corporate fellowships while at the University of Nis.

Prizes – Silver medalist in the International Olympiad in Informatics and winner of the National Olympiad in Informatics in 1999.

PUBLICATIONS

Z. Dzunic, J. G. Chen, H. Mobahi, O. Buyukozturk, and J. Fisher III. A Bayesian State-space Approach for Damage Detection and Classification. *In Proceedings of the Twenty-Third International Modal Analysis Conference*, to appear.

Z. Dzunic and J. Fisher III. Bayesian Switching Interaction Analysis Under Uncertainty. *In Proceedings of the Seventeenth International Conference on Artificial Intelligence and Statistics*, pp. 220-228, 2014.

Z. Dzunic. Text Structure-Aware Classification. *S.M. Thesis*, MIT, Cambridge, MA, 2009.

C. Y. Crutchfield, **Z. Dzunic**, J. T. Fineman, D. R. Karger, and J. Scott. Improved Approximations for Multiprocessor Scheduling Under Uncertainty. *In Proceedings of the Twentieth Annual Symposium on Parallelism in Algorithms and Architectures*, pp. 246–255, 2008.

Z. Dzunic, S. Momcilovic, B. Todorovic, and M. Stankovic. Coreference Resolution Using Decision Trees. *ALA 05: Workshop on Mathematical Foundations of Computer Science*, 2005.

D. Rancic, I. Antolovic, and **Z. Dzunic**. Adaptive Algorithm for Large Scale Terrain Rendering. In *Proceedings on Visualization, Imaging, and Image Processing (VIIP)*, pp. 598-603, 2005.

EXTRACURRICULAR ACTIVITIES

Dorm officer, CSAIL Olympics winning team captain, cook for CSAIL Graduate Student Lunch, table tennis – MIT Spring Open 2007 Under 1000 winner, intramural basketball.