

Aashish Dattani

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EDUCATION ◇ Department of Computer Science and Engineering, IIT Madras

4th year Dual Degree student - expected graduation - 2010
CGPA so far: 8.98/10.

- ◇ Ratna Junior College, Hyderabad, India
with 98% in Physics, Chemistry and Mathematics.
- ◇ Little Flower High School, Hyderabad, India.
10th Standard Board Examination(S.S.C.): 93%.

FIELDS OF INTEREST

- ◇ Artificial Intelligence
- ◇ Data Mining and Machine Learning
- ◇ Reinforcement Learning
- ◇ Bioinformatics

PROJECTS

◇ Automatic test-case generation from Natural Language Requirement Specification May-July, 2008

at *Technical University of Munich* under the guidance of **Prof. Dr. Peter Struss**. The project saw me working on Time constrained automata, a variant of Timed Automata (Reference: R. Alur and D.L. Dill. A theory of timed automata. *Theoretical Computer Science*). I designed and implemented various algorithms (like complementation, exists etc.) for these automata which were used to generate test cases from formal models of requirement specifications.

◇ Application of Mixture Models to retrieve cancer-diagnosing information from DNA Microarray data May-July,2007

at Strand Life Sciences , Bangalore, India. Used Gaussian mixture models to extract genome-wide copy numbers from micro-array data. (Reference: R. Irizarry et al. Estimating Genome-Wide Copy Number Using Allele-Specific Mixture Models, *Journal of Computational Biology*. This project saw me inspecting the suitability of various data mining algorithms for this task, and finally implementing Mixture models to obtain the required results.

◇ STXXL : the STL for large datasets to implement matrix operations on very large matrices Winter, 2006

along with **Dr. Narayanaswamy** of IIT Madras. Used the Standard Template Library for Extra Large Datasets (STXXL) to implement operations like multiplication on huge matrices (of the order 250MB). This project saw me analyzing the many disk-efficient algorithms that were implemented in this package.

- SKILLS
- ◇ **Programming:** C, C++, Java, x86 Assembly Language. Introduction to Python, Common Lisp, Scheme and Prolog
 - ◇ **Databases:** MySQL and the WEKA library for data mining algorithms
 - ◇ **Softwares:** Latex, Lex, Yacc and Makefiles
 - ◇ **Web Design:** HTML and CSS
 - ◇ **Operating Systems:** Comfortable with many tools on UNIX and Windows
- RELEVANT COURSES
- ◇ Artificial Intelligence
 - ◇ Data Mining and Machine Learning
 - ◇ Reinforcement Learning
 - ◇ Probabilistic reasoning in AI
 - ◇ Data Structures and Algorithms
 - ◇ Probability and Random Processes
 - ◇ Memory-based Reasoning in AI
- SELECTED COURSE PROJECTS
- ◇ **Biointeraction Modeling Software**
As a part of the Software Engg. course, I designed and developed a novel software which models interaction between various biomolecules and presents this to the user with a GUI where he can run graph-theoretic various algorithms to analyze molecule interactions for drug discovery.
 - ◇ **Pascal Compiler**
Design and Implementation of a compiler for a subset of Pascal using various tools like Lex and Yacc. It could handle functions, recursions, parameter passing and arrays. This also involved simulation of the setting up of activation records and transfer of control within the program.
 - ◇ **Game-playing Program - Reversi**
Game-playing algorithm for the game of Othello - came first at the department level in this tournament. The α - β pruning algorithm with some optimizations was used against the opponent.
 - ◇ **Wiki Database**
Building the Database Management System of a model Wiki database which supports various SQL queries with a PHP interface.
- EXTRA-CURRICULAR ACTIVITIES
- ◇ Student member of the **Association for Computing Machinery (ACM)**.
 - ◇ Selected as the **Google Campus Ambassador** for IIT Madras for the academic year - Aug,2007 - May,2008.
 - ◇ Worked as a Newsletter Coordinator for Shaastra, technical fest of IITM.
 - ◇ Worked for 3 yrs at the National Cadet Corps, obtaining A and B level certificates.
 - ◇ Involved in the coordination of the Literary events like Cluedo at Saarang, the cultural festival of IIT Madras.
- ACADEMIC ACHIEVEMENTS
- ◇ Awarded the German Academic Exchange Service (DAAD) for summer research at TU Munich.
 - ◇ All India Rank 442 in the Joint Entrance Examination (JEE).
 - ◇ Selected for the semi-finals of the Indian National Physics Olympiad (InPhO).