

ARITRA SENGUPTA

E-mail: sengupta.25@osu.edu E-mail: sengupta@cse.ohio-state.edu

OBJECTIVE

- To pursue research and thereby work in areas like program analysis, software engineering and programming languages. To participate in innovative projects in the area of research interest.
- To contribute to algorithms and technologies behind robust, dependable softwares. To strive and excel in research pertaining to the area of interest.

EDUCATIONAL QUALIFICATION

- Pursuing Ph.D. in Computer Science and Engineering, Ohio State University, Aug-2011 – till date
- Bachelor of Technology in Computer Science and Engineering, Vellore Institute of Technology— 2008. (CGPA- 9.29)
- Indian School Certificate Examination-2004 (94.5% PCME)

WORK EXPERIENCE

- Currently, I am working on development of analyses for solving concurrency issues in multi-threaded programs. I am developing the analysis in Jikes RVM (<http://jikesrvm.org/>). In my current project I am using a combination of static and dynamic analysis to make the program SC preserving. I am working under the guidance of Prof. Michael D. Bond.
- I had worked at Tata Consultancy Services Ltd. from Aug, 2008 till July, 2011. I had worked primarily on programming language translation, program analysis, and migration of legacy systems to other platforms.

CERTIFICATION AND PROFESSIONAL TRAINING

- Certified by IBM as an Associate Developer in DB2 9.5 SQL Procedure Developer
- Certified by IBM as an Associate Developer in DB2 9 Family Fundamentals
- Certified by IBM as an Associate Developer in Websphere Studio V5.0

ACADEMIC PROJECTS

- Implementation of lexical analysis, parsing, intermediate code generation, control-flow analysis in ROSE compiler framework (<http://www.rosecompiler.org/>) (2012).
- Implementation of a LISP interpreter in core java (2011).
- Project titled “A Rule Based expert system to model business rules in an Insurance company” was a manifestation of the same. This was implemented through C# .NET (ASP.NET), XML, Oracle-9i. Here, I separated the business rules in an XML sheet (not linked to core business logic for flexibility of Rules) and implemented a forward chaining algorithm to match the rules with the facts in the knowledge base. (2007-2008).
- Project titled “Content Based Image Retrieval using PCA” was an application of clustering algorithm. For each image of training set and the input image feature vectors were calculated using Eigen Values and Eigen vectors (Principal Component Analysis). The minimum Euclidean distance between an image of training set and input image gave the best possible match. Gradually, I had enhanced this to a small face recognition application. I had implemented the same using Matlab (2006).

- Project titled “An Automated Service Centre”. The project was used to facilitate the service provided to customers in any service centre of an electronic company; the main goal was to completely automate the service process and allocation of technicians. ASP.NET was used for front end and C# as programming language along with Oracle 9i for back end (2005). Later, I had implemented the same using JSP/Java (in NetBeans and Oracle-9i). This was my first under graduate official project. Here, I had also used all PL/SQL constructs such as Cursor, Triggers, PL/SQL embedded functions, Stored Procedures and the like. Learned the use of Rational Rose.

RESEARCH AT WORK

- Research work done to finalize strategy for translation of Algol code in legacy systems to C /C++ code. Each Algol key word was mapped to a C function. Efficiency was a major concern as it was a banking application with numerous transactions being issued per minute. This involved extensive use of C pointers for handling arrays. Nibble operations replicating Algol Hex arrays were done in C using bit operators. Implementation of libraries as DLL using system functions to load and link called functions at run-time (2009-2010).
- Research to find suitable ways to call C Libraries from COBOL programs (Inter-language calls - COBOL to C calls). For example, programs communicated through a dialog established through a message (having the header and data part separate), and MQ (Message Queue). I have also used IBM-z/OS OLTP- CICS and I am conversant with scripting languages such as JCL. I was involved in analysis, translation and testing of C and COBOL codes of a security application and a cheque encashment application.
- Hands-on experience gained in the migration project in DB2 in IBM-Z OS, VSAM File Handling (Both Keyed and Sequential). Contributed in migration of an already existing encryption algorithm (in Algol) to C programming Language using Unions and Structures. The intrinsic bit operations of Algol were handled subtly using C Bit operators and Unions. This was a part of the security application.

ACHIEVEMENTS AND ACCOLADES

- Awarded ‘University Fellowship’ for the year 2010-2011, graduate student fellowship, Ohio State University.
- Secured “Star of the Month” award via TCSGEMS in April, 2010 for contributing in strategy, design, implementation (UT, CIT, SIT and UAT) of the migration project, undertaken by Tata Consultancy Services, India
- Secured “Initial Learning Program Top Performer” award in TCS GEMS in the first phase of training at Tata Consultancy Services, India
- Won merit Certificate and scholarship in 3 consecutive years 2006, 2007, 2008 for academic performance at Vellore Institute of Technology University.
- Awarded Merit Certificate from school for securing 95.3 % in Physics, Chemistry and Mathematics in Indian School Certificate Examination (XII) 2004.

PERSONAL INFORMATION

- **Date of Birth** : 16th June , 1986
- **Nationality** : INDIAN
- **Sex** : MALE