

## SHASHANK GUPTA

Email: [sgupta@cs.colostate.edu](mailto:sgupta@cs.colostate.edu); Phone: 732-890-1531; Website: [www.cs.colostate.edu/~sgupta](http://www.cs.colostate.edu/~sgupta)

**Objective:** To apply software engineering principles to help develop innovative robust software solutions.

### Education:

Master of Science: Computer Science Colorado State University, USA GPA: 3.9/4.0 Dec'09  
Bachelor of Engineering: Computer Engineering Delhi Institute of Technology, India GPA: 3.7/4.0 2007

### Technical Skills:

- Languages: Alloy, ASP.NET, C, C++, C#, ColdFusion, HTML-CSS, Java, MATLAB, OCL, OpenGL, SQL, UML, XML, Z
- Operating Systems: Microsoft Windows 98 and above, Linux
- IDE's & Software & Frameworks: Clover, EclEmma, Eclipse, EJB, JUnit, MS Office'07, Navicat, NetBeans, Photoshop, QTP, RFT, SemmlCode, Visual Studio

### Research Interest:

- Aspect Oriented Software Development

### Academic Achievements:

- Received admission with full financial aid for MS in Computer Science at Colorado State University.
- Secured 1470/1600 and 293/300 score in GRE and TOEFL respectively.
- Awarded merit scholarship during all four years of undergraduate study at DIT in recognition of academic excellence.
- Authored 4 research papers in computer science in reputed international conferences and journals.
- Secured 1<sup>st</sup> position in the national level technical paper presentation contest held at DIT in Feb. 2006.
- Secured All India Rank 138 out of 50,000 students in the entrance examination for DIT and DCE in 2003.
- Was awarded the prestigious National Talent Search Examination scholarship by the Government of India in 2000.

### Projects:

- Add Configuration Manager Object Oriented Software Development in C# CaridianBCT, CO  
Added functionalities to the DLog parsing subsystem of the Atreus System Manager (ASM). The existing parsing service did not allow the parsing of data log files whose configuration was not present in the ASM database. I wrote software to add this feature. Test driven development was carried out in C#.
- DLL Test Harnesses XML & Software Development in C# Progressive, CO  
Developed ASP.NET web services to test C# DLL's. Also wrote build and elevate scripts using Progressive's proprietary language Proscript.
- Distributed Chat Applications Distributed Software Development in Java/AspectJ CS518, CSU  
Implemented a distributed chat application using Java RMI. The application enables Clients running on different machines to exchange messages with the server and with each other. Scalability of the distributed application was a key focus. Cross cutting features like logging, error handling and encryption were later added as aspects. RFT was used to automate the testing the application.
- Parking Garage System Object Oriented Software Development in Java CS414, CSU  
Developed a parking garage management system to automate all the activities involved in managing a parking system. Use of UML for requirements and design documentation, unit testing, use of design patterns and refactoring techniques were emphasized upon. This project was carried out along with three graduate students.
- Employment Websites Web Development in ColdFusion and ASP.NET CIS665, CSU  
Developed an employment website first in ColdFusion and then in ASP.NET. The website can be used by employers to post information about a job opening and to search for qualified prospective employees registered on the website. The website also allows registered, prospective employees to search and fill out a job application for the advertised positions or submit online resumes.
- Testing of AOP programs Mutation Testing in AspectJ CS518, CSU  
Performed an experiment to evaluate the effectiveness of JUnit to test AspectJ programs. Metrics were proposed and calculated to quantify the effort required to kill the mutants using JUnit. The mutants were generated by using AjMutator on the pointcut descriptors of a popular AOP test bed HealthWatcher. The experiment showed that not all mutants can be killed by a test suite

written using JUnit and highlighted the need for the development of more AOP specific testing tools. The work has been submitted to the journal STVR for publication.

- Code Analysis Clover and SemmleCode CS514, CSU  
Metrics were proposed to determine the control structure (Centralized vs. Delegated) of existing Java systems. Metrics were calculated by performing code coverage analysis using Clover and by querying the populated Semmle database using SemmleCode's .QL language.
- AOM Composition: A case study Aspect Oriented Modeling (AOM) CS517, CSU  
The AOM approach developed by France et al. was used to model an open source AOP test bed HealthWatcher and to study the effect of composing multiple aspects in different orders with the model of base code. Model composition was carried out by using the generic model composition tool Kompose, developed at IRISA, France.
- Classification Algorithms Computer Vision Research in MATLAB RRCAT, India  
Developed classification algorithms for optical diagnosis of oral cancer in MATLAB. The results have been published in the Journal of Photochemistry and Photobiology and were also presented at two conferences: ICOL '05 and NLS '05.
- 3D World OpenGL/C++ Graphics Programming CS410, CSU  
Developed a 3D Open-Air setup for the CS410 lectures using OpenGL. Features like user controlled navigability, animation, lighting, texture mapping were implemented.
- Paint Program OpenGL/C++ Graphics Programming CS410, CSU  
Developed a drawing program that supports creation and modification of 2D objects such as lines, rectangles and polygons. Object Oriented Approach was followed to provide different modes (multiple drawing modes, select, move, fill etc.) and features like rubber banding and object persistence.
- CARE Tool CASE Research in Java DIT, India  
Developed a software requirement specification and management tool based on the model proposed by Dr. S. Sabharwal, in Java. The tool automates the management of requirements of a system and calculates the complexity metric 'strength'.
- Routing Algorithm C++ Implementation DIT, India  
Implemented and evaluated a routing algorithm proposed by A.Kusuma et al at Globecom 2004. The routing algorithm was trained on randomly generated networks and dependence of throughput on other network parameters was presented.

#### **Positions of Responsibilities/ Extra Curricular Activities:**

- Am working as a Teaching Assistant for the course: 'CS414: Object Oriented Design'. The job involves helping students gain a working knowledge of the underlying foundations of object-oriented design and analysis and the current state of practice. GTA is also responsible for grading assignments and exams.
- Am a member of the CSU chapter of ACM.I was also an organizing member of technical festival 'Innovision' at DIT.
- Involved in the organization of medical camps to evaluate use of optical spectroscopic technique for diagnosis of oral cancer to patients in India.
- Lead the school student body as the School Adjutant (Boys) for the session 2000-2001 and the School Captain (Boys) for the session 2001-2002.

**References:** Available on Request.