

## Atul S Kulkarni

1107 E 2nd Street  
Duluth, MN 55805

www.d.umn.edu/~kulka053

218-341-7957  
atulskulkarni@gmail.com

### SUMMARY

I am looking for a challenging opportunity in the area of software development and algorithm design. I have recently completed MS degree in Computer Science from University of Minnesota Duluth, MN. Prior to pursuing MS I have worked for 4.5 years as a software engineer working on C/C++ on various platforms.

### EDUCATION

<b>Master of Science, Computer Science</b> Minor: <b>Applied Computational Mathematics</b>	University of Minnesota Duluth	June 2009	GPA: <b>3.6 / 4.00</b>
<b>Master of Computer Science</b>	University of Pune, India	June 2003	GPA: <b>3.90 / 4.00</b>
<b>Bachelor of Computer Science</b>	University of Pune, India	June 2001	GPA: <b>3.80 / 4.00</b>

### SKILLS

Operating Systems: Unix, Linux, Windows, Solaris  
Languages: C, C++, Perl, Python  
Software Packages / Libraries: R, MPI, WEKA, Matlab, STL

### PROFESSIONAL EXPERIENCE

**Teaching Assistant**, Department of Computer Science, UMD, **Sept. 2007-May-2009**

- Read and understand students' code
- Evaluate the labs and assist students with programming difficulties
- Conduct discussion sessions with students to explain problems and answer questions

**Software Engineer**, Symantec India Limited, Pune/Maharashtra, **Aug. 2005- Aug. 2007**  
**Projects:** Notification SDK.  
**Responsibilities:** Bug fixing, feature addition, porting on new platforms and compilers. Owned the Lotus Notes interface module of the Notification SDK. Feasibility study of "IM notifications" feature for the product development. Building code on 12 platforms including Linux, Unix, Windows and Solaris.  
**Achievements:**

- Successfully ported of the code to Visual Studio 2005
- I was designated as a single point of contact for Lotus Notes notification related issues on the product
- Also, presented a widely acclaimed technical paper on "Context Based Content Analysis for Emails and IM Security" at Symantec's Engineering Conference "Cutting Edge 07"

**Software Engineer**, eQ-Technologic India Pvt. Ltd., Pune/Maharashtra, **Nov. 2003 – Aug. 2005**  
**Project:** HP Image Zone Express, Preclick Photo-Back plugin, Teamcenter MRO  
**Responsibilities:** Feasibility study, prototyping, Feature development, bug fixing, build engineer.  
**Achievements:**

- Ranked among the best employees and awarded out of turn promotions
- I received appreciation from my manager for stepping up as a build engineer, a position with a lot of responsibility
- My project leader at UGS appreciated my contribution towards the development of grammar for the machine life cycle compiler module of Teamcenter MRO

## RESEARCH PROJECT

### A Nearest Neighbor Approach using Clustering on the Netflix Prize Data

- Use Collaborative Filtering methods to predict possible rating for the movies based on given ratings
- Proposed a new method based on "clustering users" based on their "similarity in the movie space"
- Integrated IMDB data set to extract the genre information for each movie and created clusters of users based on their genre preferences.
- Our method surpassed Netflix's existing system in the RMSE measure.
- Our method improved the speed of the naïve k-NN method by 200 times without sacrificing much accuracy.

## ACADEMIC PROJECTS

### Needles in Gigastack – MPI Parallel Programming with C: (<http://trpc.sourceforge.net> )

**Task:** To find top R interesting phrases of length m to n. Interesting term was defined based on the "Term Frequency" \* "Inverse Document Frequency" measure

**Technology used:** C, MPI. **Platform:** Blade Center with 1068 compute nodes and Linux operating system

**Responsibilities:** Analysis of the problem, design the algorithms, coding the design

#### Achievements:

- Successfully implemented "Suffix Array" data structure to identify n-grams (terms of length n)
- Designed and implemented the method to identify and store unique n-grams without bloating the memory requirements exponentially.
- Designed and coded a novel approach for building "parallel suffix arrays across multiple processing nodes". This approach provided scalability when the work allocation was done properly.
- The design eliminated the need to do the expensive merge of Suffix Arrays at the manager node.
- Designed a novel approach to store unique n-gram strings in a binary tree by storing the super string.

**Indian Language Transliteration Algorithm:** Completed as part of "Industrial training" for MCS course in the year 2003 with Modular Info-tech Pvt. Ltd as an Intern from 1/2003 – 8/2003.

**Technology used:** C++, STL. **Platform:** Windows and Linux.

**Responsibilities:** Study the phonetics of Indian Scripts, Design the algorithm, Coding the algorithm

#### Achievements:

- Designed and implemented an algorithm to convert given text from one Indian script to another based on its phonetic mapping to the Roman script.
- Based on the study done on 5 Indian scripts for their phonetic similarity.
- Algorithm released as part of Sun Microsystems' Star Office suite.
- Added some variation for the address transliteration, identified the verbs in the addresses and changed word order with its translational replacement.

## ACTIVITIES

**Member:** BarCampPune Organizing Committee. 2006, 2007.

**Student Member:** Association for Computing Machinery 2008 - 2009

**Blogging:** I blog at "[www.atulsays.com/blog](http://www.atulsays.com/blog)" since 2003.

**Member:** Intramural Volleyball, UMD

**Master of Ceremony:** Feast of Nations, International Student's Cultural Night, UMD 2008

**References available upon request**