

## Asif Javed

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## Education

**Rensselaer Polytechnic Institute** Troy, NY  
Ph.D., Computer Science, (CGPA 4.0), December 2008

**University of Illinois at Chicago** Chicago, IL  
M.S., Computer Engg., (CGPA 3.9, C.S. GPA 4.0), May 2004

**University of Engineering and Technology, Lahore** Lahore, Pakistan  
B.S. in Electrical Engineering (with honors) 2000

## Research Interests

Statistical and Computational Genetics, Bioinformatics, Data Mining

## Work Experience

**Postdoctoral Researcher** December 2008 - Present  
Computational Biology Center, IBM T. J. Watson Research Yorktown, NY

**Research Intern** May 2008 - August 2008  
Computational Biology Center, IBM T. J. Watson Research Yorktown, NY

**Teaching / Research Assistant** August 2004 - December 2008  
Rensselaer Polytechnic Institute Troy, NY  
*Courses:* Computer Science 1, Models of Computation, Randomized Algorithms

**Teaching / Research Assistant** August 2001 - May 2004  
University of Illinois at Chicago Chicago, IL  
*Courses:* Random Signal Processing, Analog Communication Circuits,  
Computer Architecture, Digital Logic

**Teaching Assistant** August 2000 - August 2001  
Lahore University of Management and Sciences Lahore, Pakistan  
*Courses:* Discrete Mathematics, Algorithm Design, Advanced Algorithm Design  
Circuits and Systems 1, Algorithms in Computational Biology

## Publications

- L. Parida, A. Javed, *The Coalescent ARG: Combinatorial Construction of Coalescence with Recombinations*, under submission.
- M. Mele, A. Javed, M. Pybus, F. Calafell, L. Parida, and J. Bertranpetit, *A new method to reconstruct recombination events at a genomic scale*, under submission.
- A. Javed, P. Paschou, M.W. Mahoney, and P. Drineas, *Reconstructing the genome with PCA-correlated tSNPs*, under submission.
- A. Javed and L. Parida, *Recombinomics: Population Genomics from a Recombination Perspective*, Proceedings of C3S2E, Montreal, 2010.
- L. Parida, A. Javed, M. Mele, F. Calafell, and J. Bertranpetit, *Minimizing recombinations in consensus networks for phylogeographic studies*, **BMC Bioinformatics**, Asia Pacific Bioinformatics Conference, January 2009.

- L. Parida, A. Javed, M. Mele, and J. Bertranpetit, *A case for Recombinomics*, IBM Technical Report RC24677, August, 2008.
- A. Javed and P. Paschou, *Extracting tagging SNPs from genome-wide datasets*, Data Mining for Biomedical Informatics, workshop held in conjunction with 7<sup>th</sup> SIAM Conference on Data Mining, April 2007.
- P. Paschou, M.W. Mahoney, A. Javed, J.R. Kidd, A.J. Pakstis, S. Gu, K.K. Kidd, and P. Drineas, *Intra- and inter-population genotype reconstruction from tagging SNPs*, **Genome Research**, January 2007.
- P. Drineas, A. Javed, M. Magdon-Ismail, G. Pandurangan, R. Virrankoski, and A. Savvides, *Distance matrix reconstruction from incomplete distance information for sensor network localization*, 3<sup>rd</sup> Annual IEEE Conference on Sensor, Mesh and Ad Hoc Communications and Networks (**SECON**), September 2006.
- A. Javed and A. Khokhar, *Frequent pattern mining on message passing multiprocessor systems*, Distributed and Parallel Databases-An International Journal (**DAPD**), November 2004.
- A. Javed and A. Khokhar, *Scalable parallel algorithm for mining frequent patterns on message passing parallel systems*, ISCA Parallel and Distributed Computing Systems (**PDCS**), August 2003.

## Presentations

- A. Javed, *Recombinomics*, oral presentation at Structure Discovery in Biology: Motifs, Networks & Phylogenies seminar at **Schloss Dagstuhl**, June 2010.
- A. Javed, *Recombinomics*, invited talk at GBB Annual Retreat at **University of Toronto**, May 2010.
- A. Javed, *Recombinomics: recombination-based population genomics*, tutorial at 8<sup>th</sup> Asia Pacific Bioinformatics Conference (**APBC 2010**), January 2010.
- A. Javed, M. Mele, F. Calafell, J. Bertranpetit, and L. Parida, *IRiS-detecting recombinations for phylogenetics and more*, oral presentation at Genome Informatics meeting at **CSHL**, October 2009.
- A. Javed, and J. Bertranpetit, *Recombinations-based population genomics*, oral presentation at Workshop on Algorithmics in Human Population Genomics at **DIMACS**, April 2009.
- A. Javed, *Identification of Recombination's in Sequences (IRiS)*, invited talk at LUMS, Jan. 09.
- P. Paschou, J. Lewis, A. Javed, and P. Drineas, *Using principal components analysis to identify candidate genes for natural selection*, poster presentation at **ASHG** annual meeting, Nov. 2008.
- A. Javed, *Novel matrix decomposition for knowledge discovery in genomic data*, white paper presentation at **Cyber-Enabled Discovery and Innovation**, NSF symposium held at RPI, Sep. 2007.
- A. Javed and A. Khokhar *Parallel frequent pattern mining*, poster presentation at **Midwest Database Symposium**, April 2004.
- *Parallel association rule mining using frequent-pattern tree data structure* for **IEEE Lahore** at LUMS, Jan. 2003.

## Activities

- Program Committee Member, *Workshop on Biological DataMining and its Applications in Healthcare*, workshop held in conjunction with *ICDM-2010*.
- Reviewer for 21<sup>st</sup> *Annual Symposium on Combinatorial Pattern Matching (CPM 2010)*, June 2010.
- Publications and web chair, 21<sup>st</sup> *Annual Symposium on Combinatorial Pattern Matching (CPM 2010)*, June 2010.
- Publications and web chair, 8<sup>th</sup> *Asia Pacific Bioinformatics Conference (APBC 2010)*, January 2010.
- Program Committee Member, *Data Mining for Biomedical Informatics*, workshop held in conjunction with 8<sup>th</sup> *SIAM Conference on Data Mining*, April 2008.
- Reviewer for *ACM Transactions on Sensor Networks*.

## Awards

- ★ Received **DIMACS** travel grant to attend *Workshop on Algorithmics in Human Population Genomics*, April 2009.
- ★ Received **IPAM** travel grant to attend *Search and Knowledge Building for Biological Datasets*, workshop held as a part of *Mathematics of Knowledge and Search Engines*, November 2007.
- ★ Received **NSF** travel grant to attend *SECON 2006*.
- ★ Senior design project, *Efficient Implementation of RSA algorithm* was awarded **2nd** prize among **250** students.
- ★ Received *National Merit Scholarship* throughout undergraduate studies.

## Computer Skills

*Operating Systems:* Microsoft Windows, Unix, Linux

*Programming Languages:* C/C++, Assembly (x86 architecture), Perl

*Parallel Programming:* MPI 1 & 2, OpenMP

*Tools:* Matlab, bash shell scripting, L<sup>A</sup>T<sub>E</sub>X

## Course Projects

- C compiler using lex and yacc
- k-mean clustering and naive bayesian classifier
- Parallel foveation using OpenMP
- Parallel quicksort with load balancing using MPI
- Estimation of optimal processor parameters
- Face detection and recognition using Eigenfaces

## References

- **Laxmi Parida**, Research Staff Member, CBC, IBM T. J. Watson Research
- **Petros Drineas**, Associate Professor, CS dept., Rensselaer Polytechnic Institute
- **Mohammed J. Zaki**, Professor, CS dept., Rensselaer Polytechnic Institute