

Mohammed Abdul Hai Zahid

RESEARCH INTERESTS

Parallel Computing, GPU programming, Bioinformatics, Pattern Recognition, Machine Learning, Text Mining, Algorithms Analysis, Natural Language Processing, and Software Engineering.

EDUCATION

Indian Institute of Technology Roorkee, Uttaranchal India

Ph.D. Candidate, Bioinformatics, January 2004 - November 2007

- Dissertation Topic: “Computational Methods For Phylogenetic Analysis”
- Advisor: Dr. R. C. Joshi and Dr. Ankush Mittal

Summary: Phylogenetics is the study of relationship among species or genes with the combination of molecular biology and mathematics. In this research work we tried to find relationships between species with application of pattern recognition methods. We applied and improved different pattern recognition algorithms to solve different phylogenetic and computational biology problems. Computational and memory efficiency of the algorithm for large scale data was considered as metric for evaluating existing and newly developed algorithms.

As a result of this research we solved four different phylogenetic related problems using efficient refactoring of pattern recognition algorithms. These algorithms and methods shown superiority over existing algorithms both in terms of computational efficiency and memory usage. The results were also evaluated by biotechnologists’ for their biological significance. IBM awarded this work as best PhD research work in 2006.

Visweshwariah Technological University, Karnataka India

M.Tech., Computer Science and Engineering, 2001-2003

- Dissertation and Project: “Data Extraction Software For Telemetry Systems”
- Advisor: Dr. Vijay Kumar

Summary: Data collection and analysis from a far away station has become a key component of many latest technologies, like Nuclear Power Plants, Super Fast Plane and military systems. Measuring and doing analysis of data collected from a far away station or device is known as telemetry systems. These are one of the most useful component to measure performance of systems where either human interaction and presence is impossible or harmful.

In the dissertation and project we designed and developed a system for collecting data from a launched vehicle like satellite launches and analyze the data received from various sensors placed on satellite that communicate with ground station.

The challenging task was to receive and analyze represent fast receiving data from a launched satellite. We developed a concurrent real time system that does the disc task accurately with the help of distributed computer clusters.

This project was awarded the best M.Tech project of year in 2003.

Jawaharlal Nehru Tehnological Univesity, Andhra Pradesh India

B.Tech., Computer Science and Engineering , 1997-2001

HONORS AND AWARDS

Samsung Electronics (Korea) Global Intern 2007

IBM outstanding PhD Award for the year 2006

National Doctoral Fellowship (NDF) from Jan 2005 to Nov 2007.

Best Paper of the Session - ICSCI’05

Ministry of Human Resource Development (MHRD) Fellowship from January 2004 to December 2004.

GATE Fellowship from August 2001 to June 2003

Secure PDF for Embedded Systems

Project: Implementation of advanced security features such as password protected PDF support for embedded systems, direct printing and cloud printing.

Team Size: 1

Responsibilities: Design and development of Secure pdf support through application of RC4 (40 and 128 bits) AES (128 and 256 bits) along with password verification and authentication modules. Making ample test cases and test files for regress testing. Porting to the final product to target systems.

ACADEMIC EXPERIENCE

Indian Statistical Institute, Kolkota, India.

Assistant Professor

February, 2007 - June, 2007

Responsible for conduction research and finding applications of Soft Computing techniques in Bioinformatics. Organized a spring school on Applications of Soft Computing Techniques for researchers from across the country to promote research interest in the area.

M J College of Engineering and Technology, Hyderabad, India.

Lecturer

August, 2003 - December, 2003

Taught four units of the course "Artificial intelligence" to B.E (Computer science & information technology) third year students. Handled 'C' language labs for First year B.E students for four different branches of engineering.

Indian Institute of Technology Roorkee, Roorkee, India.

Teaching Assistant

Jan 2004. - Dec, 2006

Shared responsibility for labs, tutorials, homework assignments, and grades.

- Operating system concepts , Autumn 2004.

RESEARCH PUBLICATIONS

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C, "A Pattern Recognition Based Approach for Phylogenetic Network Construction with Constrained Recombination," Journal of Pattern Recognition, Elsevier, (*accepted*) 2006.

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C, and Atluri, G., "CLINIQA: A Machine intelligence based clinical question answering system," IEEE Transaction on biomedical engineering, 2006.

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C, "Combining rooted phylogenetic trees with ancestral divergence time," (*communicated*).

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C., "Least common ancestor based efficient method for constructing rooted supertrees.", Journal of Bioinformatics and Biomedical Engineering, Vol 1, Issue 5, pp 1-6, 2005.

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C, "Use of Phylogenetic network and its reconstruction Algorithms", Journal of Bioinformatics India, ISSN 0972-7655, January-March 2005. pp. 47-58, 2005.

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C., "A Classification Based Approach for Root Unknown Phylogenetic Networks under Constrained Recombination", in the proceedings of the 2nd International Conference on Distributed Computing and Internet Technology (ICDCIT05), LNCS 3816 , ISBN: 3-540-30999-3, DOI: 10.1007/11604655, Springer, December 2005, pp. 592-603.

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C., "A supertree method for combining rooted phylogenetic trees with ancestral divergence Time", in the proceedings of 12th International Conference on BioMedical Engineering, IFMBE Proceedings, Vol. 12. Singapore: ISSN 1727-1983, ISBN:

981-05-4572-X, Singapore, December 2005, pp. 626-1 to 626-4.

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C., “An optimization based approach for combining semi-labeled rooted phylogenetic trees”, in the proceedings of 12th International Conference on BioMedical Engineering, IFMBE Proceedings, Vol. 12. ISSN 1727-1983, ISBN: 981-05-4572-X, Singapore, December 2005, pp. 624-1 to 624-4.

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C., “A Pattern Matching Based Approach towards Phylogenetic Networks with Constrained Recombination”, in the proceedings of the 8th International Conference on Information Technology (CIT 2005), Bhubaneswar, India, December 2005, pp. 53-58.

ZAHID, M.A.H, MITTAL, A. JOSHI, R.C. “A Heuristic Algorithm for Optimal Agreement Supertrees construction”, International Conference on Systemics, Cybernetics and Informatics (ICSCI 05), Hyderabad, India, January 2005, pp. 595-599.

FARQUAD, M.A.H, **ZAHID, M.A.H**, “Network Representation of Phylogenetic Relationship”, International Conference on Systemics, Cybernetics and Informatics (ICSCI 05), Hyderabad, India, January 2005, pp. 450-455.

CONFERENCE
PRESENTATIONS

A Heuristic Algorithm for Optimal Agreement Supertree construction,
January 2005 at ICSCI Hyderabad.

An Efficient Algorithm for Rooted Supertrees,
April 2 2005 at IRISS, IIT Kanpur.

A supertree method for combining rooted phylogenetic trees with ancestral divergence Time,
December 2005 at ICBME Singapore.

An optimization based approach for combining semi-labeled rooted phylogenetic trees,
December 2005 at ICBME Singapore.

A Classification Based Approach for Root Unknown Phylogenetic Networks under Constrained Recombination,
December 2005 at ICDCIT Bhubaneswar.

EXTRACURRICULAR
ACTIVITIES

Samsung Electronics, Suwon, South Korea.

Social Service HSS01 Class (Scientific Models)

2008 - Present

An active member of a Social Service Class of Samsung Social Service program through company. In this program we go to different schools and teach children about technology using specimen models, like solar energy system, digital systems and fiber optic communication.

Columnist for division magazine

2008 -2012

Have been writing as a columnist for the Digital Printing Division magazine. Published several articles related to social and professional aspects of life in Korea and Samsung for non Korean employees.

Recruiting Brochure Model

2008

Represented Samsung Printing Division on the Recruiting brochure for campus recruitment in Korea and abroad. Interviewed and photographed as Samsung Recruiting Brochure model for the year 2008.

Indian Institute of Technology Roorkee, India.

Secretary, CCB

Sep., 2006 - Aug., 2007

One of the most responsible posts for a student at IIT Roorkee. Secretary Coordinating Committee (CCB) for Bhawans (hostels) is responsible for the smooth functioning of all the cafeterias (messes) at IIT Roorkee. The secretary is also responsible of looking after the central purchase of the food items and their proper distribution to all the cafeterias (messes) in the campus. Solving the problem of students as well as mess workers, are also the responsibility of the secretary.

Secretary, Ravindra Bhawan

Sep., 2006 - Aug., 2007

Responsibilities include taking care of Bhawan inmates and Bhawan infrastructure development.

Member, Library Advisory Committee

Sep., 2006 - Aug., 2007

As a students' representative, the responsibility is to convey students' demands to the librarian and the committee. On the other hand, helping the committee in infrastructure development such as subscription of new research journals, books, video lectures, etc.

Member, Institute Security Committee

Sep., 2006 - Aug., 2007

Responsibility is to convey students' concern to the security officer and have a vigil on the security system of the institute.

Member, E&CE Department Consultative Committee

Nov., 2005 - Aug., 2007

Responsibility is to convey research scholars concern to the chairman of the committee regarding computational, library, several other concerns and monitoring the progress of the infrastructure development.

Judge, Cognizance05

Mar., 2005

Shared the responsibility of judging the participants' presentations and their research skills at IIT Roorkees Tech Fest (Cognizance05).

REFERENCES

Available on request.