

## BIOGRAPHICAL SKETCH

**A. Name:** Debasis Mitra

**Address:** Department of Computer Science  
Jackson State University  
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### **Academic Qualifications**

**Ph.D.** Computer Science, 1994, University of Louisiana at Lafayette (ULL).

*Dissertation: Efficiency Issues in Temporal Reasoning.*

**Ph.D.** Physics, 1984, Indian Institute of Technology at Kharagpur (IIT).

*Dissertation: The Lorentz Groups in the Oscillator realization.*

**M.Sc.** Physics, 1977, Indian Institute of Technology at Kharagpur.

### **Professional Experience**

**Associate Professor** (Fall 1999 - to present). **Assistant Professor** (Fall 1999 - Summer 1999). Department of Computer Science, Jackson State University (JSU); *research and teaching computer science at graduate and undergraduate levels.*

**Summer Visiting Faculty Fellow** (Summer 1997). Engineering Research Center of NSF, Mississippi State University; *research on time-based scheduling for high performance computing.* (Summers, 1995, 1996) Lawrence Berkeley National Laboratory; *research on temporal databases, and multi-dimensional databases.*

**Graduate Assistant/ Visiting Instructor** (Fall, 1989 - Spring, 1994). Center for Advanced Computer Science and Computer Science Department, ULL; *research on temporal reasoning and teaching undergraduate and graduate courses in computer science.*

**Senior Geophysicist** (March, 1982 - July, 1989). Oil and Natural Gas Corporation, India; *geophysical data acquisition and processing, and geological modeling work for petroleum exploration.*

**Research Fellow** (January, 1978 - March, 1982). Department of Physics, IIT; *research on mathematical physics (Lie group representation).*

### **B. Publication Related to the Proposed Project**

(1) "Expert System Architecture for A Simulation Package," D. Mitra, U. Babu, A. K. Earla, and J. A. Hemminger, ICNPAA conference - AI Track, Daytona Beach, FL, 1998.

(2) "Expert System Architecture for Rocket Engine Numerical Simulators: A Vision," D. Mitra, U. Babu, A. K. Earla, and J. A. Hemminger, an abstract for the NASA Lewis HBCU Conference, 1998, Cleveland, Ohio.

(3) "An object model for a rocket engine numerical simulator," P. N. Bhalla, V. Pratap, P. Reddy and D. Mitra, *NASA University Research Centers - Technical Conference* (URC-TC), Huntsville, Alabama, 1998. An html copy available here<a href="urc-tc98.html">here</a>.

(4) "Cluster Forming Interval Sub-algebras," Debasis Mitra, *CONSTRAINT journal*, special issue on *Spatial and Temporal Reasoning*, vol. 3, pp. 179-189, 1998.

### **Other Significant Publications**

(1) "Complexity studies of a temporal constraint propagation algorithm: A statistical analyses," Debasis Mitra and Nabendu Pal, *Journal of Experimental and Theoretical Artificial Intelligence*, 11 (1999), pp. 155-183.

(2) "Experimenting with a Temporal Constraint Propagation Algorithm," Debasis Mitra and Rasiah Loganantharaj, *Journal of Applied Intelligence*, Vol 6, No 1, January, 1996.

(3) "Theoretical and practical implications of an algorithm for finding all consistent temporal

models," Debasis Mitra, Proceedings of the *Florida Research Symposium (FLAIRS)*, 1995; also in the Proceedings of the *Time-95 Workshop* (independently reviewed).

(4) "Characterization of Temporal Sequences in Geophysical Databases," Arie Shoshani, Preston Holland, Janet Jacobsen and Debasis Mitra, Proceedings of the *Statistical and Scientific Database Management (SSDBM)* conference, Sweden, 1996.

(5) "The Lorentz group in oscillator realization III - the group  $SO(3,1)$ ," D. Basu and D. Mitra, *Journal of Mathematical Physics (AIP)*, Vol 22, p 946, 1981.

## **Grant Activities**

(1) "Temporal/Multi-dimensional Reasoning with Uncertainty," a CAREER award from the National Science Foundation (NSF), \$150k, 1998-2001, to be extended to 2002 with additional budget.

(2) "Expert System Architecture for Rocket Engine Numerical Simulators: An Object-oriented Design," a grant from the NASA Glenn (Lewis) Research Center, 1995-1999. "Intelligent Interface to the Numerical Simulators (IINS) of Aerospace Transportation Engines," continuation-grant from the NASA Glenn (Lewis) research Center, 1999-2002.

(3) "Studying internet-based technologies for distance education," individual component of the multi-university High Performance Sci-Viz Center-grant (funded by the US Navy), shared with Dr. Qutaibah Malluhi, expected to start from September 1999 for one year.

(4) "Developing a Plant Identification Expert System," a seed grant from the LBNL-JSU-AGMUS Science Consortium (funded by the DOE), 1995-1997.

## **Professional Activities**

**Curriculum development activities:** Taught and improved courses on *Introduction to computing*, *Principles of compiler construction*, *Introduction to Artificial Intelligence*, *Advanced Artificial Intelligence (graduate level)*, *Design and Analysis of algorithms (graduate level)* and *Temporal databases (introduced at graduate level)*. Participated in departmental *Curriculum development committees*, *Research committee*, *Library-liaison committee* and *Graduate committee*. Engaged in Graduate and Undergraduate *student advising*.

**Refereed articles** for *Journal of Applied Intelligence*, ACM conferences on databases, and many other conferences and journals. Reviewed the book 'Massively Parallel AI,' edited by Hiroaki Kitano and James Hendler, MIT Press, 1994, for the journal *Artificial Intelligence in Medicine*.

**Delivered invited talks** to: (1) A panel on 'Qualitative Reasoning' at a conference of the *American Association of Aeronautics and Astronautics*, 1994, San Antonio, Texas. (2) Graduate Colloquium, Mathematics Department, 1996, *University of Southern Mississippi*. (3) Graduate Colloquium, Computer Science department, 1996, *Mississippi State University*, Computer Science Department, (4) NSF Young Scientists Program, 1997, School of Science and Technology, *Jackson State University*.

**Professional Memberships**: AAAI, International Society of Applied Intelligence, IEEE, ACM, Society of Physics Students, Association of Exploration Geophysicists (India).

## **C. List of Past Collaborators**

(1) Arie Shoshani, Comp. Sc. Research and Development, ICSD, Lawrence Berkeley National Laboratory. (2) Anthony Maida, Center for Advanced Computer Studies, USL. (3) Roger King, Engineering Research Center, Mississippi State University.

## **D. List of Graduate Advisors**

Rasiah Loganantharaj, Center for Advanced Computer Studies, ULL.  
Debabrata Basu, Department of Physics, IIT, Kharagpur, India.