

# Bibhas Ghoshal

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## EDUCATION

**Ph.D. Candidate, Computer Science and Engineering**  
Department of Computer Science and Engineering  
Indian Institute of Technology Kharagpur

**Expected June 2014**  
IIT Kharagpur

Dissertation Title : “Devising Improved Test Techniques for Network-on-Chip Based Memory Systems”

**Master of Engineering in Computer Science and Engineering**  
West Bengal University of Technology, Salt Lake  
DGPA : 7.97

**2003- 2005**  
Kolkata

**Master of Science in Electronic Science**  
Jadavpur University, Jadavpur  
Percentage : 79%

**2000- 2002**  
Kolkata

**Bachelor of Science in Electronic Science**  
Bankura Christian College  
Percentage : 67% (University Topper)

**1997- 2000**  
Burwdan University

## RESEARCH EXPERIENCE

**Institute Research Scholar**  
Department of Computer Science and Engineering  
IIT Kharagpur

**2009- Present**

- Investigate theoretical and experimental studies on Network-on-Chip based Memory Systems
- Conduct study on Refresh operation of Dynamic Random Access Memories (DRAMs) and proposed re-use of refresh technique for self-testing of DRAMs
- Develop Built-In-Self Test simulator for simulation of faults in memories
- Utilized in-house System C based NoC simulator to investigate bandwidth and throughput of the NoC with online test performed for the memory cores
- Utilized Electronic Design Automation tools from Synopsys (VCS, Design Compiler) to estimate area, power dissipation, functional and timing simulation of proposed test architectures for NoC based memory systems

**Project Officer**  
Department of Computer Science and Engineering  
West Bengal University of Technology, Kolkata

**2006-2009**

- Work on academic projects related to VLSI system design, design and implementation of reconfigurable DSP processor
- Supervised graduate students in their course project titled “Neural Network based Handwritten character recognition technique “
- Setting up the VLSI Design Lab (installation of tools, setting up license servers)

**Final Year M.Sc. Project**

**2001-2002**

- Deposition of CdS thin films and study of its optical properties

## SELECTED PUBLICATIONS ( ACCEPTED / UNDER REVIEW)

### Journals

- **Bibhas Ghoshal**, Chittaranjan Mandal and Indranil Sengupta. *Refresh Re-Use based Transparent Test for Detection of Hard Faults Developed during Field Operation of DRAMs* (Under Review)
- **Bibhas Ghoshal**, Kanchan Manna, Santanu Chattopadhyay, Indranil Sengupta. *On-line field test for permanent faults in NoC buffers* (Under Review)

### Conferences

- **Bibhas Ghoshal**, Subhadip Kundu, Immdranil Sengupta, Santanu Chattopadhyay : *Particle Swarm Optimization Based BIST Design for Memory Cores in Mesh Based Network-on-Chip*. [VDAT 2012](#): 343-349
- **Bibhas Ghoshal** and Indranil Sengupta : *A Distributed BIST Scheme for NoC-based Memory Cores*, to be published in the Proceedings of the 16<sup>th</sup> EuroMicro Conference on Digital System Design held at Santander, Spain (4<sup>th</sup> - 6<sup>th</sup> September 2013)
- **Bibhas Ghoshal**, Chittaranjan Mandal and Indranil Sengupta : *Re-using Refresh for Self-testing DRAMs*, accepted for publication in the Proceedings of the International Symposium on Electronic System Design (ISED 2013) to be held at NTU, Singapore from 12-13 December, 2013

## TEACHING EXPERIENCE

**Lecturer (Part-time), Graduate Level Course** 2002-2003  
**Lecturer (On Contract), Graduate Level Course** 2005-2006  
**Department of Electronic Science, Dinabandhu Andrews College, Garia** **Kolkata**

- Instructor for subjects B.Sc (Electronic Science course) – Lectures and Practical
- Examiner (internal) for Calcutta university practical exam for B.Sc. (Electronic Science)

**Visiting Faculty, Post-Graduate Level Course** 2007-2009  
**Department of Electronic Science, Dinabandhu Andrews College, Garia** **Kolkata**

- Instructor for subjects in M.Sc. (Electronic Science)
- Question setter for the M.Sc (Electronic Science) university exam

**Project Officer, Instructor for Graduate and Post-graduate Level course** 2006-2009  
**West Bengal University of Technology** **Kolkata**

- Instructor for subjects in B.Tech in Computer Science and Engineering
- Instructor for subjects in M.Tech in Computer Science and Engineering
- Instructor for subjects in M.Tech in Microelectronics and VLSI
- Examiner for semester exams - theory and practical

**Teaching Assistant, Graduate and Post-graduate level course** 2009-Present  
**Indian Institute of Technology Kharagpur**

- Conducted Tutorials to help students understand and solve homework problems
- Prepared and graded homework solutions and class test, evaluated day to day lab sheets
- wrote quizzes, posted their solutions

## SKILLS

- Software Tools: ModelSim,VCS and Design Compiler (Digital chip design front-end), Encounter and Virtuoso (Digital chip design back-end) , Hspice (Circuit simulation), ISE (FPGA Implementation)
- Hardware implementation : FPGA prototyping using Spartan 3, 3E, Virtex 2,4 and 5 based standard and advanced boards
- Languages: C, Verilog, Python, Matlab,HTML,Shell script
- O/S: Linux(RPM and Debian based distributions.),Windows

## AWARDS AND FUNDING

- University topper in B.Sc. Examination
- Awarded scholarship by Jadavpur University to carry out post-graduate study at Jadavpur University
- Awarded annual award by Alumini Association N.C.E. Bengal and Jadavpur University for excellence in M.Sc. examination
- Microsoft Travel grant (Department of CSE, IIT Kharagpur) for presenting paper at the 16<sup>th</sup> Euromicro Conference on Digital System Design, held at Santander, Spain

## PRESENTATIONS

- Presented lecture sessions at Workshop on VLSI Design tools for employees of Interra Systems (titled “spec to layout” ) held at IIT Kharagpur (2012-2013)
- Presented lecture sessions at Workshop on VLSI Test and Verification tools held at West Bengal University of Technology (2013)

## REFERENCES

### **Professor Indranil Sengupta**

Department of Computer Science and Engineering  
Indian Institute of Technology Kharagpur

India – 721302

[isg@iitkgp.ac.in](mailto:isg@iitkgp.ac.in)

Relation : Professor and PhD Supervisor for 4 years

### **Professor Chittaranjan Mandal**

Department of Computer Science and Engineering  
Indian Institute of Technology Kharagpur

India – 721302

[chitta@iitkgp.ac.in](mailto:chitta@iitkgp.ac.in)

Relation : Professor and mentor for 4 years