

SUMANTA PYNE

Current Position

Final (fifth) year PhD Student *working on* Power Aware Software
under guidance of Professor Ajit Pal
at Department of Computer Science and Engineering,
Indian Institute of Technology Kharagpur

Current Address

Office

Room # 208, Department of Computer Science and Engineering,
Indian Institute of Technology Kharagpur
Kharagpur, West Bengal, INDIA, PIN-721302

Residence

Room # C-110, Acharya Jagadish Chandra Bose Hall of Residence
Scholars' Avenue, Indian Institute of Technology Kharagpur
Kharagpur, West Bengal, INDIA, PIN-721302

Contact

Email: sumantapyne@gmail.com, spyne@cse.iitkgp.ernet.in

Phone: +91-3222-282255 (Office) **Fax:** +91-3222-278985 (Office)

Mobile: +91-9433746069, +91-9748596894

Webpage: <http://cse.iitkgp.ac.in/~spyne/>



Permanent Address

45 A Indra Biswas Road,
Belgachia, Kolkata,
West Bengal, INDIA
PIN-700037
Phone:+91-033-2556 7035

EDUCATION

Pursuing a Doctor of Philosophy (Ph.D.) in Computer Science and Engineering thesis submission
from Indian Institute of Technology Kharagpur. expected by
Dissertation Title: Power Aware Software. July 2014
Supervisor: Dr. Ajit Pal

Master of Engineering (M.E.) in Computer Science and Engineering July 2009
with specialisation in Computer Science and Information Technology
from Bengal Engineering and Science University, Shibpur, West Bengal, INDIA.
Thesis Title - Pinball Routing Elimination with Route Optimization in Muthihomed Mobile Networks.
Supervisor: Dr. Sulata Mitra
Percentage in Marks 73.6%. Equivalent Cumulative Grade Point Average (CGPA) 8.11 in 10 point scale ¹.

Bachelor of Technology (B.Tech) in Computer Science and Engineering July 2005
from West Bengal University of Technology, Kolkata, INDIA.
Affiliated college: Meghnad Saha Institute of Technology, Kolkata
Project Title - Online Hotel Reservation System.
Supervisor: Ms. Baishali Ghoshal and Mr. Farooq Ahmed
Degree Grade Point Average (DGPA) 7.92 in 10 point scale. Equivalent Percentage in Marks 71.7%².

All India Senior School Certificate Examination (AISSCE) June 2001
conducted by Central Board of Secondary Education (CBSE), New Delhi, INDIA.
Affiliated school: Birla High School, Kolkata
Subjects of study: English (first language), Bengali, Mathematics, Physics, Chemistry and Computer Science
Percentage in Marks 66.6%.

¹Percentage is converted into equivalent CGPA as per AICTE rules.

²DGPA is converted into equivalent marks as per AICTE rules.

All India Secondary School Examination (AISSE) June 1999
conducted by Central Board of Secondary Education (CBSE), New Delhi, INDIA.
Affiliated school: Birla High School, Kolkata
Subjects of study: English (first language), Bengali, Mathematics, General Science (Physics, Chemistry and Biology) and Social Science (History, Geography, Civics and Economics)
Percentage in Marks 73.8%.

INTERNSHIPS

Six week B.Tech Summer internship on Java and J2EE June 2004 – July 2004
at CMC Limited, Rippon Street, Kolkata, West Bengal, INDIA
Introduced to Core Java, Applet, Swing, JDBC, Socket Programming, JSP, Servlet, and EJB.

INDUSTRIAL EXPERIENCE

Programmer June 2005 – December 2005
at Hi-Q Solutions, Kolkata, West Bengal, INDIA
Worked on projects based on

- UNIX System and Network Programming using C/C++.
- Software applications using Visual Basic/Java with Relational Database Management Systems like Oracle and MySQL.
- Micro controller based applications using 8086 assembly language.

RESEARCH EXPERIENCE

Institute Research Scholar 29th December 2009 – till date
at Department of Computer Science and Engineering,
Indian Institute of Technology Kharagpur

- Working on “*Power Aware Software*” for the partial fulfillment for the degree of Doctor of Philosophy (*Ph.D.*) in Computer Science and Engineering.

Research on MANEMO July 2009 – December 2009
at Department of Computer Science and Technology,
Bengal Engineering and Science University, Shibpur

- Worked on “*MANEMO-Integration of Multihomed Mobile Networks (NEMO) with Mobile Adhoc Networks (MANET)*”.
- Added features of *MANEMO* to the multihomed mobile network simulator named “*NEMO_SIM*”.
- Designed a *MANEMO* for safety of fishing trolleys in deep sea.

Graduate Scholar January 2008 – June 2009
at Department of Computer Science and Technology,
Bengal Engineering and Science University, Shibpur

- Worked on “*Pinball Routing Elimination with Route Optimization in Multihomed Mobile Networks*” for the partial fulfillment for the degree of Master of Engineering (*M.E.*) in Computer Science and Engineering.
- Developed a multihomed mobile network simulator named “*NEMO_SIM*” on Java platform using Swing and multi-threading.

PROJECTS HANDLED

Online University Student and Alumni Academic Record September 2005 – December 2005
Verification System using J2EE, MySQL and Oracle9i at Hi-Q Solutions

Microcontroller based Animated LED Display for Decoration July 2005 – September 2005
using Intel 8051 microcontroller and LED display boards of various size at Hi-Q Solutions

Chat Server Design using Unix Socket Programming at Hi-Q Solutions June 2005 – July 2005

Online Hotel Reservation System using J2EE and MySQL July 2004 – June 2005
as B. Tech final year project work at Department of Computer Science and Engineering,
Meghnad Saha Institute of Technology

TEACHING EXPERIENCE

Teaching Assistantship at Indian Institute of Technology Kharagpur December 2009 – till date

Undergraduate Courses

- Programming and Data Structure Laboratory (CS19001), during Autumn 2010, Autumn 2013
- Programming and Data Structure Theory (CS11001), during Spring 2011.
- Advanced Computer Architecture Theory (CS40023), during Autumn 2011, Autumn 2012.

Graduate Courses

- Low Power Circuits and Systems Theory (CS60054), during Spring 2012, Spring 2013, Spring 2014.

Teaching Assistantship at Bengal Engineering and Science University, Shibpur July 2007 – June 2009

- Programming Laboratory, during Autumn 2008, Spring 2009.

Lecturer at Department of Computer Science and Engineering, January 2006 – June 2007
Techno India College of Technology, Kolkata, West Bengal, INDIA

Taught the following undergraduate courses

- Introduction to Programming in C language Theory and Laboratory, during Spring 2006.
- Computer Organization Theory, during Autumn 2006.
- Data Structure Laboratory, during Autumn 2006.
- Advanced Computer Architecture Theory, during Spring 2007.
- Computer Architecture Laboratory, during Spring 2007.

Conferences, Workshops, Short Term Courses and Seminars Attended

- 17th International Symposium on VLSI Design and Test (VDAT 2013), July 27-30, 2013, Jaipur, India.
- International Conference on Computer and Communication Technology (ICCCT-2011), September 15-17, 2011, Allahabad, India.
- International Conference on VLSI Design and Communication Systems, (ICVLSICOM-10), January 8-10, 2010, Chennai, India.
- Short Term Course on Data Mining and Data Warehousing, March 24-27, 2009, Department of Computer Science and Technology, Bengal Engineering and Science University, Shibpur, India.

COMPUTER SKILLS

- System Programming on UNIX platform using C, C++.
- Parser Designing using LEX and YACC.
- 8085 and 8086 assembly language programming.
- Multi Threading applications using Java.
- Network Programming on UNIX platform.
- Simulation softwares using Java.
- NS2 Network Simulator.
- Relational Database Design and SQL optimization.
- SimpleScalar: A microarchitectural simulator suite.
- Wattach: An architecture-level power analysis tool.
- XEEMU: A configurable runtime and power simulator for the Intel(c) XScale(c) architecture.

- Multi2Sim: A simulation framework for heterogeneous computing, including models for superscalar, multithreaded, multicore, and graphics processors.
- McPAT: An Integrated Power, Area, and Timing Modeling Framework for Multicore Architectures.
- HotSpot: A tool for studying Architectural Thermal Model.

RESEARCH INTERESTS

Power Aware Software (current research area)

- Energy-efficient code generation techniques to reduce dynamic, leakage and switching power dissipation in modern processors (Area of PhD Work).
- Power and Thermal Aware Process Scheduling on Multicore processors.
- Battery Aware Task Scheduling (to extend battery life) on processors in battery driven systems.
- Energy-efficient garbage collection and memory management for embedded systems.
- Theoretical Modeling of Computational Energy and Thermal Complexity of Algorithms.
- Power Aware SQL execution for RDBMS.

Computer Networks - Network Mobility

- Route Optimization in Multihomed Mobile Networks.
- Pinball Routing Elimination in Multihomed Mobile Networks.

PUBLICATIONS

Ph.D. Publications

Journal

1. “Branch Target Buffer Energy Reduction Through Efficient Multiway Branch Translation Techniques”, by Sumanta Pyne, Ajit Pal, Journal of Low Power Electronics (JOLPE), Volume 8, Issue 5, December 2012, pp. 604 - 623.

Conference

1. “Energy Efficient Array Initialization Using Loop Unrolling with Partial Gray Code Sequence”, by Sumanta Pyne, Ajit Pal, in the proceedings of 17th International Symposium on VLSI Design and Test (VDATE 2013), July 27-30, 2013, Jaipur, India, CCIS Volume 382, pp. 83-93, Springer-Verlag Berlin Heidelberg 2013.
2. “Realization of Power Aware Software Prefetching as a Multi-Objective Optimization Problem”, by Sumanta Pyne, Krishanu Ray, Ajit Pal, in the proceedings of 2nd IEEE International Conference on Computer and Communication Technology (ICCT-2011), September 15-17, 2011, Allahabad, India, pp. 253 - 259 (2011)

M.E. Publications

Journal

1. “Fuzzy logic based route optimization in multihomed mobile networks”, by Sulata Mitra, Sumanta Pyne, Wireless Networks, Springer, Netherlands Volume 17, Issue 1, pp. 213-229 (2011)
2. “Pinball Routing Elimination Algorithm for Multihomed Mobile Network”, by Sulata Mitra, Sumanta Pyne, The International Journal of Sensors, Wireless Communication and Control, Volume 1, Number 2, December 2011, pp. 147-155.
3. “MANEMO for Fishing Trolleys in Deep Sea”, by Sulata Mitra, Sumanta Pyne and Arkadeep Goswami, Special issue on Mobile Ad Hoc Network in BVICAM’s International Journal of Information Technology (BIJIT), Volume 3, Number 1, Issue 5 (2011)
4. “Performance Analysis of Four Real Life NEMO using Fuzzy Logic Based Route Optimization Algorithm”, by Sulata Mitra, Sumanta Pyne, International Journal of Applied Research on Information Technology and Computing, Volume 1, Issue 3, pp. 290-321 (2010)

Conference

1. “Security Issue of a Route Selection Algorithm in Multihomed Mobile Networks”, by Sulata Mitra, Sumanta Pyne, in the proceedings of International Conference on VLSI Design and Communication Systems, (ICVLSICOM-10), January 8-10, 2010, Chennai, India, Volume 2, pp. 31-37 (2010)
2. “Scheduling and Route Optimization in Next Generation All-IP Wireless Network”, by Sulata Mitra, Sumanta Pyne, in the proceedings of International Conference on VLSI Design and Communication Systems, (ICVLSICOM-10), January 8-10, 2010, Chennai, India, Volume 2, pp. 19-25 (2010)
3. “Distributed Route Selection Algorithm in Nested Multihomed Mobile Networks”, by Sulata Mitra, Sumanta Pyne, in the proceedings of International Conference on Advances in Computing, Control, and Telecommunication Technologies, (ACT 2009), December 28-29, 2009, Trivandrum, Kerala, India, pp. 75 - 79 (2009)

HONOURS and ACHIEVEMENTS

- Teaching Assistantship during fifth year of PhD from Indian Institute of Technology Kharagpur, from January 2014 to till date.
- Financial Assistantship from the institute for oral paper presentation at 17th International Symposium on VLSI Design and Test (VDAT 2013), July 27-30, 2013, Jaipur, India.
- Doctoral Scholarship from Ministry of Human Resource Development, Government of India, from January 2010 to December 2013.
- Graduate Aptitude Test in Engineering (GATE) Scholarship from Ministry of Human Resource Development, Government of India, during Master of Engineering programme from July 2007 to June 2009.
- Qualified Graduate Aptitude Test in Engineering (GATE) in the discipline of Computer Science in 2007 and 2008, and in the discipline of Computer Science and Information Technology in 2009 with 92.89, 89.96 and 96.36 percentiles, respectively.

REFERENCES

Dr. Ajit Pal

Professor, Department of Computer Science and Engineering

Indian Institute of Technology Kharagpur

Kharagpur, West Bengal, INDIA, PIN-721302

Webpage: <http://www.facweb.iitkgp.ernet.in/~apal/>

Email: apal@cse.iitkgp.ernet.in

Phone: +91-3222-283486 (Office)

Fax: (03222) 255303 / 255239

Mobile: +91-9434027519

Relationship: Supervisor of Ph.D. work for last 3 years 11 months

Dr. Sulata Mitra

Associate Professor, Department of Computer Science and Technology

Bengal Engineering and Science University, Shibpur

Botanic Garden, Howrah, West Bengal, INDIA, PIN-711103

Webpage: <http://www.becs.ac.in>

Email: sulata@cs.becs.ac.in, bulu456@yahoo.co.in

Phone: +91-033-26684561/62/63 (Office)

Mobile: +91-9007960317

Relationship: Supervisor of (i) Master’s project work for 1 year and 6 months, and (ii) Research work on *MANEMO* for 6 months

PERSONAL DETAILS

Date and Place of Birth: 30th November, 1982, Kolkata

Gender: Male

Blood Group: B+

Nationality: Indian

Faith: Hinduism

Category: General

Mother's Name: Rekha Pyne
Father's Name: Sukumar Pyne
Spouse's Name: Anwesha Pyne (Pal)

Mother Tongue: Bengali
Languages Known: Bengali, Hindi and English
Hobbies: Playing and watching cricket, coding.

I certify that all information stated in this curriculum vitae is true and complete to the best of my knowledge.



Sumanta Pyne
Date: March 12, 2014
Place: Kharagpur