



Mukulika Maity (www.cse.iitb.ac.in/~mukulika)
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IIT Bombay
Specialization: Computer Science & Engineering

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M.Tech.+Ph.D. Dual Degree
Female
DOB: 17 SEP 1988

Examination	University	Institute	Year	CPI / %
M.Tech.+Ph.D. Dual Degree	IIT Bombay	IIT Bombay	2016	8.39
Undergraduate Specialization: Computer Science				
Graduation	Bengal Engineering and Science University, Shibpur	Bengal Engineering and Science University, Shibpur	2010	84.67
Intermediate/+2	WBCHSE	Goghat High School	2006	93.5
Matriculation	WBBSE	Pukhuria Suresh Chandra High School	2004	94.25

SCHOLASTIC ACHIEVEMENTS

- Awarded with **Best Graduate Forum Presenter** Award 2016 at COMSNETS.
- Awarded with **IBM Rising Research Scholar** Award 2015.
- Secured **All India Rank 67** with score 911 among 107086 candidates in **GATE'2010**.
- Secured **State Rank 19** in West Bengal in **Madhyamik Pariksha 2004** (Matriculation).
- Secured **Rank 269** among 76327 candidates in Engineering Entrance Examination **WBJEE'2006**.

PUBLICATIONS

- **Accepted**
 - "TCP Download Performance in Dense WiFi Scenarios: Analysis and Solution", **Mukulika Maity**, Bhaskaran Raman, Mythili Vutukuru, IEEE Transactions on Mobile Computing 2016
 - "TCP Download Performance in Dense WiFi Scenarios", **Mukulika Maity**, Bhaskaran Raman, Mythili Vutukuru, 7th International Conference on COMMunication Systems NETworkS (COMSNETS) 2015
 - "A Software Solution to Conduct Inquiry based Student Directed Learning", Shitanshu Mishra, **Mukulika Maity**, 6th IEEE International Conference on Technology for Education (T4E) 2014
 - "Demo: Witals: AP-centric Health Diagnosis of WiFi Networks", **Mukulika Maity**, Avinash Chaurasia, Rachit Srivastava, Bhaskaran Raman, Mythili Vutukuru, 21st Annual International Conference on Mobile Computing and Networking (MobiCom) 2015 (Demo)
- **Submitted**
 - Witals: AP-centric Health Diagnosis of WiFi Networks", **Mukulika Maity**, Avinash Chaurasia, Rachit Srivastava, Bhaskaran Raman, Mythili Vutukuru, IEEE Transactions on Mobile Computing 2016

MAJOR PROJECTS, SUMMER INTERNSHIP & SEMINAR

- **Ph.D. Thesis: Health Diagnosis and Congestion Mitigation of Wireless Networks**
(Guided by Prof Bhaskaran Raman & Prof Mythili Vutukuru July'12-Ongoing)
 - TCP download performance in dense WiFi scenarios: analysis and solution
 - Real life "wild" measurement of WiFi performance in dense scenarios like crowded live classrooms.
 - Analysis of TCP download performance: poor performance due to complex interplay of various factors like collisions, rate adaptation algorithm, TCP's RTO estimation algorithm and so on.
 - Solution to improve performance: *WiFiRR*, an AP scheduler which improves TCP download performance by limiting the number of "active" clients at a certain time.
 - Evaluation of WiFiRR in simulation and in real world. WiFiRR improves TCP download performance upto $3.5\times$.
 - Witals: AP-centric Health Diagnosis of WiFi Networks
 - Development of a real-time WiFi health diagnosis tool *Witals*, which presents a sanitized view of WiFi network's health.

- Design of a causal diagnosis graph which relates various causes to different kinds of performance problems. The causal graph identifies an extensive set of WiFi performance problems.
- Identification of a set of metrics suitable for live measurements. The metrics quantify the effect of each cause and comparable with each other.
- Design of a diagnosis algorithm that puts together the causal graph and the metrics. It can identify multiple simultaneous causes of performance problems and quantify the effect of each.
- Evaluation of Witals in a variety of controlled and real life settings. In all cases, Witals matches ground truth accurately.

● **M.Tech Thesis: Measurement and Characterization of 3G performance in India**

(Guided by Prof Bhaskaran Raman & Prof Kameswari Chebrolu, May'11-Dec'11)

- Measurement of 3G performance like throughput, delay, jitter, packet loss for further improvements.
- Development of measurement tool and deployment among 3G users.
- Analyzing the collected data in various aspects.

● **Summer Internship: Enabling Smart Classrooms Using Mobile Platforms**

(IBM Research Lab Bangalore, Mentor Vijay Gabale April'13-July'13)

- Developed an end-to-end system to enable effective teaching using mobile platforms.
- Developed android application to enable mobile client for Moodle and captured user activities.
- Implemented optimized delivery and captured user context.

● **M. Tech. Seminar: SmartPhone Applications** *(Guided by Prof. Bhaskaran Raman, Spring 2010)*

- Studied & analyzed different SmartPhone Applications and Platforms.

M.TECH COURSE PROJECTS & B.TECH PROJECT

● **Implementation of Distributed Hash Table** *(Guided by Prof. Bhaskaran Raman, Autumn 2010)*

● **Performance Comparison of DSDV and AODV in Mesh Networks** *(Guided by Prof. Kameswari Chebrolu, Spring 2011)*

● **Parallel Programming with MPI: Quick Sort & Conway's Game of Life**
(Guided by Prof. Snirivas Aluru, Autumn 2010)

● **Hypothetical Index Selection in PostgreSQL** *(Guided by Prof. N. L. Sarda, Autumn 2010)*

● **Development of IITBombay Portal** *(Guided by Prof. G. Sivakumar, Autumn 2010)*

● **Edge Detection of an image** *(Guided by Prof. G. Sivakumar, Autumn 2010)*

● **Strength Reduction of Expressions using LLVM** *(Guided by Prof. D. M. Dhamdhere), Spring 2011)*

● **B.Tech Project: Iris Recognition** *(Guided by Prof. Sekhar Mandal, August 2009-May 2010)*

- Recognition of Iris image for authentication and authorization purpose.
- The input eye image is processed through processing stages, then template is created for the authentication and authorization purpose.

SCHOLARSHIPS

- Awarded ACM student travel grant to travel and present at IRISS, Trivandrum, India 2016
- Awarded COMSNETS student travel grant to travel and present at COMSNETS Ph.D forum, Bangalore, India 2016
- Awarded MobiCom ACM student travel grant to travel and present at MobiCom, Paris, France 2015
- Awarded COMSNETS student travel grant to travel and present at COMSNETS, Bangalore, India 2015
- Awarded Microsoft Research (MSR) India travel grant to attend Microsoft summer school, 2014.
- Awarded COMSNETS student travel grant to travel and present at COMSNETS Ph.D forum, Bangalore, India 2013

- Received Scholarship from BESU for being the first intake among girls in the B.E. program.
- Received GAABESU (Global Alumni Association of BESU) Scholarship in first & third year of B.E.
- Received National Scholarship and Middle Scholarship in class Eight and Six respectively.

COURSES TAKEN

Advanced Computer Networks, Mobile Computing, Cryptography and Network Security, Performance Analysis of Computer Systems and Networks, Implementation Techniques of Relational Database Management Systems, Foundations of Parallel Computation, Advanced Computer Architecture, Advanced Compilers, Introduction to Educational Technology.

POSITIONS OF RESPONSIBILITY

- **Volunteer for COMSNETS (2013 & 2015)**
 - Jointly responsible for monitoring session rooms, assisting at the registration desk, crowd control etc.
- **Teaching Assistant**
 - **Computer Architecture (Autumn 2011)**
Jointly conducting labs, evaluating assignments and answer scripts of more than 80 students.
 - **Computer Networks (Spring 2012)**
Jointly responsible for conducting labs, evaluating assignments, quizzes & semester answer scripts for a batch of 80 students.
- **Member of Webteam CSE (July'10-June'11)**
 - Part of a team responsible for developing and maintaining the department website
 - Designed and implemented some new features like Complaints management, Events management etc
 - Resolved Frequent addressal of bugs/modifications as raised by professors, stuffs and students.

EXTRA-CURRICULAR ACTIVITIES

- Member of **Group for Rural Activities, Abhyasika**, which help poor children in studies and psychologically counsel them for their all-round development.
- Completed 4th year in Rabindra Sangeet.
- Completed 1st year in Rabindra Dance and in Kathak Dance.
- Awarded prizes for recitation (Bengali,English,Sanskrit), singing, acting & dancing (in block level also).
- Awarded prizes for sports and won Gold Medal in Kho-Kho in PG Sports at IIT Bombay.