

SUBHRO DAS

- CONTACT INFORMATION** ECE Department, Carnegie Mellon University *Mobile:* +1 (412) 482-7230
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- RESEARCH INTERESTS** Statistical Signal Processing, Sensor Networks, Distributed Algorithms, Graph Theory, Machine Learning, Brain Connectomics, Big Data, Information Theory, Estimation and Detection
- EDUCATION**
- Carnegie Mellon University** Pittsburgh, PA
Ph.D., Electrical and Computer Engineering, Aug 2011 - present
– Advisor: Prof. José M. F. Moura
– GPA: 4.00/4.00
M.S., Electrical and Computer Engineering, May, 2014
- Indian Institute of Technology, Kharagpur** Kharagpur, India
B.Tech., Electronics and Electrical Communication Engineering, Jul 2007 - May 2011
– Advisor: Prof. Mrityunjoy Chakraborty
– GPA: 8.49/10.00
- RESEARCH EXPERIENCE**
- Carnegie Mellon University** Pittsburgh, PA
Graduate Researcher, Electrical and Computer Engineering Aug 2011 - present
– Developed a *consensus+innovations* type distributed Kalman filter to estimate dynamic random fields over sensor networks.
– Studying connectivity in brain networks. Interest in big data analysis.
- Indian Institute of Technology, Kharagpur** Kharagpur, India
B.Tech Thesis Project supervised by Prof. M. Chakraborty. Jul 2010 - May 2011
– Title: SPT Bit-Serial Implementation of the Sign-LMS Based Adaptive Filter and GAL.
– Reduced the hardware complexity of the multipliers using SPT representation, thereby reducing the complexity of the adaptive filter and Gradient Adaptive Lattice (GAL).
- Gwangju Institute of Science and Technology** Gwangju, South Korea
Summer Internship supervised by Prof. Heung-No Lee. May 2010 - Jul 2010
– Title: Finite Length Analysis of Network Codes on the Binary Erasure Channel.
– Developed & simulated a new mathematical model to analyze finite length network codes on Binary Erasure Channel.
- Institute of Microelectronics, Ulm University** Ulm, Germany
Summer Internship supervised by Prof. Maurits Ortmanns. May 2009 - Jul 2009
– Title: Graphical User Interface for Neural Stimulation Waveform
– Demonstrated arbitrary neural stimulation waveforms in GUI for the design of a universal neural prosthetic chip.
- Indian Institute of Management Calcutta** Kolkata, India
Winter Project supervised by Prof. P.S. Dasgupta. Nov 2008 - Dec 2008
– Title: Creation of Multi-layered Non-intersecting Steiner Trees for VLSI Routing
– Devised an algorithm to minimize the cost by removing the intersections of edges & transforming a single layer to intersection free multiple routing layers.
- Indian Statistical Institute Calcutta** Kolkata, India
Summer Internship supervised by Prof. Sandip Das. May 2008 - Jun 2008
– Title: Visibility due to Reflection with a Range inside Simple Polygons.
– Designed an algorithm to compute the visible region within any polygon after at most one diffuse reflection. It has applications in Wireless Networks design.
- PUBLICATIONS**
- Journal**
- J1. S. Das and J. M. F. Moura, “*Distributed Kalman Filtering with Dynamic Observation Consensus*”, to appear in IEEE Transactions on Signal Processing.
- Conference Proceedings and Presentations**
- C1. S. Das and J. M. F. Moura, “*Distributed Kalman Filtering and Network Tracking Capacity*”, 47th Asilomar Conference on Signals, Systems, and Computers, pp.: 629-633, Pacific Grove, CA, Nov 3-6, 2013, (Invited paper).

- C2. S. Das and J. M. F. Moura, “*Distributed Linear Estimation of Dynamic Random Fields*”, 51st Annual Allerton Conference on Communication, Control, and Computing, pp.: 1120-1125, Monticello, IL, Oct 2-4, 2013, (Invited paper).
- C3. S. Das and J. M. F. Moura, “*Distributed Kalman Filtering*”, 21st European Signal Processing Conference, pp.: 1-5, Marrakech, Morocco, Sep. 9-13, 2013, (Invited paper).
- C4. S. Das and J. M. F. Moura, “*Distributed State Estimation in Multi-agent Networks*”, 38th IEEE International Conference on Acoustics, Speech and Signal Processing, pp.: 4246-50, Vancouver, Canada, May 26-31, 2013.

COURSEWORK
AND SKILLS

Graduate Courses (CMU)

Electrical and Computer Engineering Department: Applied Stochastic Processes, Linear Systems, Network Science: Modeling and Inference, Information Theory, Large Scale Stochastic Adaptive Systems, Estimation Detection and Identification.

School of Computer Science: Machine Learning, Statistical Machine Learning (Spring 2015).

Mathematics Department: Real Analysis, Methods of Optimization

Technical Skills

Programming Languages: C, C++, Python

Softwares: Matlab, R, L^AT_EX, Git

Databases and parallelization: SQL, MapReduce

Operating Systems: Windows, Linux (Red Hat, Ubuntu)

TEACHING
EXPERIENCE

Carnegie Mellon University, Pittsburgh, PA

Teaching Assistant: 18202 Math. Found. of Electrical Engineering Sep 2014 - Dec 2014
– Weekly two recitations, one tutorial and office hours for a sophomore-level course.

Teaching Assistant: 18752 Estimation, Detection and Identification Jan 2015 - May 2015
– Weekly two office hours and grade homeworks and projects for a graduate-level course.

AWARDS &
HONORS

Carnegie Institute of Technology Deans Tuition Fellowship, 2011.

DAAD Scholarship, 2009, *for summer internship at Ulm University, Germany.*

Aditya Birla Scholarship, 2007-11, *for academic excellence and humane leadership values (given to ten students from all IITs).*

O.P. Jindal Engineering and Management Scholarship, 2007, *for academic and leadership excellence (given to one student from a class of 850 students in IIT Kharagpur).*

M.P. Birla Scholarship, 2005-07, *for excellence in academics (given to one student among approx 350 students in South Point High School).*

Swami Lokeshwarananda Gold Medal, 2005, *for being topper from Ramakrishna Mission Narendrapur in Secondary Examination (State-wide rank 12 among approx 600,000 candidates).*

LEADERSHIP
EXPERIENCE

Graduate Student Assembly (GSA) Representative, CMU Jun 2014 - present
– Represent the Electrical and Computer Engineering Department on the graduate student government body. Serve on the Vice-President’s Graduate Student Life committee.

Young Ambassador, DAAD India 2010 - 2011
– Promoted Opportunities of Higher Education in Germany. Solely organized seminar-cum-workshop for 400 students on behalf of DAAD (German Academic Exchange Service).

Hall Council Member, IIT Kharagpur 2008 - 2010
– Represented Azad Hall of Residence in administrative matters and conducted intra-hall events. As General Secretary Library, administered regular functioning of the Hall Library.

OTHER
ACADEMIC

– Represented IIT Kharagpur at the 8th Indo-German Winter Academy organized by the University of Erlangen-Nuremberg and seven IITs and delivered a lecture on *Si-Based MEMS Devices and Processing*, Dec 2009.

– Presented the paper “*Visibility due to Reflection with a Range inside Simple Polygons*” at Regional Symposium of Mathematics, IIT Kharagpur, India, Jan 2010.

– All India Rank 263 in IIT Joint Entrance Examination, 2007.

– Rank 19 & 4 in Regional Mathematics Olympiad (**RMO**), 2005 & 2006 respectively.