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Ayan Chatterjee

Current Affiliation and Contact Information

Ph.D. Student (Netowrk Science)
Northeastern University
Boston, US

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September, 2019 - Present

Research Interests

Network Science, Machine Learning, Statistics, Bioinformatics, Embedded Systems, Nonlinear Dynamics

Educational Qualifications

Ph.D. in Network Science (2019 - Present)
Northeastern University, Boston, US.
CGPA: **4.0/4.0**

Master of Technology in Electronic Systems Engineering (2015 - 2017)
Indian Institute of Science, Bangalore, India.
CGPA: **6.5/8.0**
Dissertation: Multipacket Reception in Wireless Networks

Bachelor of Electronics & Telecommunication Engineering (2011 - 2015)
Jadavpur University, Kolkata, India.
CGPA: **9.79/10.0** (University Gold Medalist)
Dissertation: Video Hardware Accelerator Design Using FPGA

Higher Secondary Examination (2011)
Ballygunge Jagadbandhu Institution, Kolkata, India.
Marks: **94%** (2nd among approx. 7,00,000 students)

Secondary Examination (2009)
Ballygunge Jagadbandhu Institution, Kolkata, India.
Marks: **93.25%** (7th among approx. 9,00,000 students)

Professional Experience & Projects

NVIDIA Graphics Pvt. Ltd, Bangalore (2017-2019)
Project: Light Weight Power Estimator

- Statistical modeling of various power components of chips from silicon measurements
- Building excel based interface to launch runs on servers and develop backend infrastructure in Python
- Using multidimensional optimization technique for determination of optimal chip configuration

Academic Achievements and Special Laurels

- Pharmacy Golden Jubilee Best Student of the year award for the student who scored highest percentage of marks in the UG Final Examination 2015.
- University Medal for standing first in merit at the BETCE Final Examination 2015.
- J. P. Saha Memorial Gold-Centered Silver Medal for securing the highest total marks in the theoretical papers at Bachelor of Electronics Telecommunication Engineering (BETCE) Final Examination 2015.
- Pran Kumar Bhattacharya Memorial Gold Medal for standing First in order of merit at the BETCE Final Examination 2015.
- Prof. Sudhanshu Deb Memorial Gold-Centered Silver Medal for securing highest aggregate marks in IC Technology and Design and VLSI Design at BETCE Final Examination 2015.
- Dr. B. C. Roy Memorial Gold-Centered Silver Medal for securing highest aggregate of among all courses at Bachelor of Engineering Examination 2015.

- Sourav Banerjee Memorial Gold-Centered Silver Medal for standing First in order of merit at the BETCE Final Examination 2015.
- Prof. Debidas Mukhopadhyay Memorial Gold-Centered Silver Medal for securing highest aggregate marks in Electron Devices 12 at the BETCE Final Examination 2015.
- Successfully completed project under IBM Global Remote Monitoring Program in 2014.
- Got selected for the DAAD-WISE Scholarship in 2014.
- Got selected for Summer Research Fellowship organized by Indian Academy of Sciences in 2014.
- Secured **2nd** Rank in West Bengal in Higher Secondary Examination(+2) among around 7,00,000 students in 2011.
- Secured 54th Rank in WBJEE (Engineering) among around 1,10,000 students in 2011.
- Secured **7th** Rank in Madhyamik Examination(10) among around 9,00,000 students in 2009.
- Mamraj Agarwal Rashtriya Puraskar for obtaining 93.25% in Madhyamik Pariksha 2009 held under the West Bengal Board of Secondary Education.

Internships

- Successfully completed the *Summer Internship* at *Indian Statistical Institute*, Kolkata under the guidance of Prof. Subhamoy Maitra, on the *software implementation of several state of the art* **stream ciphers** (funded by DRDO) during May - July, 2014.

- Successfully completed 8-month project at the **IBM (Global Remote Monitoring Program)**, under the guidance of Dr. Amitava Mukherjee, on the Control of Complex networks, during Aug-Feb, 2015.

Conference Presentation

- Presented "Non-Autonomous Dynamic Network Model Involving Growth And Decay" at IEEE International Conference on Advanced Networks and Telecommunications Systems between 6-9 November 2016 at Bangalore, India.

Publications

2018

- Saptarshi Pal, **Ayan Chatterjee**, Dripto Bakshi, Amitava Mukherjee, Mrinal Kanti Naskar, "Link Capacity Distributions and Optimal Capacities for Competent Network Performance", submitted to the Journal of Network and Systems Management. Under review.
- Avrajit Ghosh, Arani Roy, **Ayan Chatterjee**, Amitava Mukherjee and Mrinal Naskar, "Snickometer Edge Detection by Feature Extraction in TF Plane and Wavelet Domai", IEEE Conference on Applied Signal Processing 2018, Kolkata, India.

2017

- **Ayan Chatterjee**, Sandipan Sinha, T V Prabhakar, Chandramani Singh, "Multipacket Reception in Wireless networks", Annual Product Conference 2017, DESE, Indian Institute of Science, Bangalore, India.

2016

- **Ayan Chatterjee**, Amitava Chakraborty, Saptarshi Pal, Amitava Mukherjee, Mrinal K. Naskar, "Non-Autonomous Dynamic Network Model Involving Growth And Decay", IEEE ANTS 2016, Bangalore, India.
- **Ayan Chatterjee**, Abhijit Bhattacharya, Saptarshi Pal, Amitava Mukherjee, Amitava Chakraborty, Debayan Das, "Non Autonomous Complex Network Architecture with Gamma Distribution", Poster at NetSci 2016, Seoul, South Korea.
- A Mukherjee, **Ayan Chatterjee**, D Das, M K Naskar, "Design of Structural Controllability for Complex Network Architecture", **Book Chapter** for "Advanced Methods for Complex Network Analysis", IGI Publishers.

2015

- A Bhattacharya, Debayan Das, **Ayan Chatterjee**, "$O(N^2)$ Heuristic for the Estimation of Driver Nodes for the Controllability of Directed Complex Networks", Large Scale Complex Network Analysis: LSCNA 2015, Kolkata, India.

2014

- Bitan Banerjee, Debayan Das, **Ayan Chatterjee**, Sk. Jahid Ahmed, Amitava Mukherjee, Mrinal Kanti Naskar, "Markov chain based analysis of IEEE 802.15.6 MAC protocol in real life scenario", ACM BodyNets 2014, London, United Kingdom.
- Bitan Banerjee, Sk. Jahid Ahmed, Debayan Das, **Ayan Chatterjee**, "AS 802.15.4: A modified IEEE 802.15.4 standard for more reliable communication and utilization of inactive period using optimized sleep period", IEEE INDICON 2014, Pune, India.
- Debayan Das, **Ayan Chatterjee**, Bitan Banerjee, Sk. Jahid Ahmed, "Characterizing behaviour of Complex networks against perturbations and generation of Pseudo-random networks", IEEE INDICON 2014, Pune, India.
- D Das, **Ayan Chatterjee**, N Pal, A Mukherjee, M K Naskar, "A Degree-first Greedy Search Algorithm for the Evaluation of Structural Controllability of Real World Directed Complex Networks", Network Protocols and Algorithms 6 (1), 1-18.

2013

- **A Chatterjee**, D Das, M K Naskar, N Pal, A Mukherjee, "Heuristic for maximum matching in directed complex networks", Advances in Computing, Communications and Informatics (ICACCI), 2013, Mysore, India.

Technical Skills

Programming and Scripting Languages: Python, TensorFlow, C, C++, VHDL, Verilog
Operating Systems: MS Windows(9x, XP, 7), Linux(Ubuntu, Fedora, Red hat), TinyOS
Other Tools: MATLAB, NS3, Latex, MS Office
Hardware Exposure: 8085 Microprocessor, FPGA (Spartan-3E), Iris sensor motes
Circuit Simulators: Cadence Virtuoso, Spectre, Circuit Maker, Multisim, Xilinx
Operating Systems: MS Windows, Linux(Ubuntu, CentOS), TinyOS
Other Tools:: MATLAB, GDB, Valgrind, Latex, MS Office

Extra-curricular Activities and Hobbies

Coordinator and Instructor at the Science Camp during May 18-19, 2013 organized by the Matrix Publishers, Kolkata for the students of class IV to XII.
Guitarist in college band. Participated in various competitions representing Jadavpur University.
Guitar instructor at Forte Piano School of Music, Bangalore between 2016-2018.