Prasanta Majumdar, Ph. D.

PERSONAL INFORMATION

Born in India (Durgapur, West Bengal), 17 October 1977

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GOAL

Experience the fundamentals in my area of interest and expertise, and perceive the very existential nature of life the way it is.

PRESENT EMPLYOMENT

Assistant Professor INDIAN INSTITUTE OF INFORMATION TECHNOLOGY RANCHI, JHARKHAND

The Department of CSE

DOCTORAL RESEARCH

2017– 2020 NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR, WEST BENGAL

Studies on Dynamic Traffic grooming algorithms in Elastic Optical Networks

In this research work we have examined bandwidth capacity of the transmission medium in proportion to the users' traffic connections capacities and studied various relevant aspects for grooming traffic demands up to a certain possibilities. Here, the *optical fiber link* is found to be one of the most important and advanced equipments that had been evolved an another dimension in communication technology.
The immense optical capacity in an optical fiber is provisioned to carry traffic connections by $ITU-T$ fixed wavelength grid architecture. Here, many constraints were encountered to address the mismatch between users' connections capacities and innate optical capacity in the optical fiber. A various optimization approaches based on different technologies are considered in our research works toward the fulfillment of our prime research objective-Traffic Grooming.

Reference: Dr. TANMAY DE · +(91) 9434788123 · tanmayd12@gmail.com, tanmay.de@cse.nitdgp.ac.in

OTHER ESSENTIAL REQUIREMENTS

02 year 06 months post PhD experience

17 years 08 months pre PhD experience

ADDITIONAL DESIRABLE REQUIREMENTS

4 SCI Journal (Elsevier) and 2 WoS Conference (Springer) papers

PUBLICATIONS

October 2015 — Extending light-trail into elastic optical networks for dynamic traffic grooming

Journal of Optical Switching and Networking

P. Majumdar, A. Pal, T. De: Extending light-trail into elastic optical networks for dynamic traffic grooming, Journal of Optical Switching and Networking, 20 (2015) 1-15. DOI: 10.1016/j.osn.2015.10.005 **(SCI, Impact Factor 2019: 2.786)**

April 2018 — De-multiplexing the required spectrum in a traffic demand into multiple non-adjacent granular spectrums for dynamic traffic grooming in EON

Journal of Optical Switching and Networking

P. Majumdar, T. De: De-multiplexing the required spectrum in a traffic demand into multiple non-adjacent granular spectrums for dynamic traffic grooming in EON, Journal of Optical Switching and Networking, 33 (2019) 143-160. DOI: 10.1016/j.osn.2018.04.001 **(SCI, Impact Factor 2019: 2.786)**

April 2019 — An alternative minimum cost route setup algorithm in a large eon for long-haul traffic under dynamic traffic grooming

Journal of Network and Computer Applications

P. Majumdar, T. De: An alternative minimum cost route setup algorithm in a large eon for long-haul traffic under dynamic traffic grooming, Journal of Network and Computer Applications, 140 (2019) 65-86. DOI: 10.1016/j.jnca.2019.04.016, **(SCI, Impact Factor 2019: 6.281)**

Dec 2020 — A non-backtracking spectrum allocation algorithm in a large under dynamic traffic grooming

Journal of Computer Networks

P. Majumdar, T. De: A non-backtracking spectrum allocation algorithm in a large under dynamic traffic grooming, Journal of Computer Networks, 24 Dec 2020 **(SCI, Impact Factor 2019: 4.474)**

March 2020 — An algorithm based on next shortest path in large EON under dynamic traffic grooming

International Conference on Computing Analytics and Networking

P. Majumdar, T. De: An algorithm based on next shortest path in large EON under dynamic traffic grooming, International Conference on Computing Analytics and Networking, In: Proceeding of Advances in Intelligent Systems and Computing (AISC) Series, Pages:213-224, Springer (Dec 14-15, 2019), DOI: 10.1007/978-981-15-2414-1_22

March 2020 — A distance-based adaptive traffic grooming algorithm in large EON under dynamic traffic model

International Conference on Computing Analytics and Networking

P. Majumdar, T. De: A distance-based adaptive traffic grooming algorithm in large EON under dynamic traffic model, International Conference on Computing Analytics and Networking, In: Proceeding of Advances in Intelligent Systems and Computing (AISC) Series, Pages:225-236, Springer (Dec 14-15, 2019), DOI: 10.1007/978-981-15-2414-1_23

WORK EXPERIENCES

May 2023– Continuing, (Pay band: 70900-982000, AGP: 6000) — Assistant Professor, CSE, UG, PG, Regular

Indian Institute of Information Technology Ranchi, Jharkhand

I Joined the Institute as an Assistant Professor in the department of Computer Science and Engineering. After joining the Institute, I have taken charge of my duties very soon, and certainly I adhere myself to my responsibilities for rest of the time.

June 2022–May 2023, (Pay band: 70900-982000, AGP: 6000)

Assistant Professor, CSE, UG, PG, Regular

Indian Institute of Information Technology Nagpur, Maharashtra

I Joined the Institute as an Assistant Professor in the department of Computer Science and Engineering. The most prominent and excellent fact the Institute shows its service rules and protocols formed or decided by BOG or Senate or any other committees. The Institute almost does not affected/run by any individual's choices or preferences. However, the Institute has got its 100 acre permanent campus and eventually smooth conduction of academic activities and faculty/staff accommodations. Besides my teaching load/responsibilities there, I was assigned a few other responsibilities like Exam cell coordinator, Library coordinator, SAC coordinator, etc. I used to enjoy my duties there very much.

May 2022–June 2022, (Pay details: 1.24 lacs pm)

Assistant Professor, CSE, UG, PG, Regular

GITAM, Visakhapatnam

I Joined the Institute as an Assistant Professor in the department of Computer Science and Engineering. Immediately, after joining the Institute I opted and am granted for the subjects for teaching as per my choices that boosted up my enthusiasm one step ahead. However, I could not continue there for more than a few days

September 2005–June 2022, (Pay band: 15600-39100, AGP: 7000)

Assistant Professor, CSE/IT, UG, PG, Regular

Dr. B. C. Roy Engineering College Durgapur

I joined the Institute as a Lecturer in the discipline of CSE/IT. Upon joining I began teaching various core subjects under the said department. Besides my teaching duties I also had been involved in various academic and non-academid activities. In several semesters I had been acting as project coordinator under the undergraduate courses. In addition, I have been appointed as examination cell coordinator on behalf of the department of CSE/IT since last six semesters before leaving the Institute. However, in spite of various activities I always prefer to dedicate myself for teaching purpose solely. Later, after a few years, I was promoted to the Post of Assistant Professor.

January–June 2005, (Pay band: 8000-275-13599, AGP: N.A.)

Lecturer, CSE, UG, PG, Regular

Bengal College of Engineering and Technology Durgapur

I joined the Institute as a Lecturer in the discipline of Master of Computer Application. Besides the departmental subjects, here I used to teach one of the non-departmental subject numerical methods. However, besides teaching/academic activities I would counsel the students on a regular basic for achieving a good profession carrier in a certain possible way.

April–December 2004, (Consolidated)

Lecturer, CSA, UG, Regular

Raniganj Institute of Computer and Information Sciences, Raniganj

I joined the Institute as a Lecturer in the discipline of Bachelor of Computer Application. I had taught the students various basic subjects related to Introduction to computing and programming language followed by other core subjects.

I also involved there for grooming the students in various aspects under their curricular and co curricular activities.

June 2002–June 2003, (Consolidated) — Lecturer, CSA, UG, PG, Regular

Sikkim Manipal University

It was very beginning that I joined the Institute as a Lecturer in the discipline of Master of Computer Application. I started my teaching carrier there by teaching one of my favorite subjects Operating System. Then afterward I considered myself to continue in this profession and involved in the teaching-learning process in a true sense.

FIELDS OF INTEREST

Formal language and automata theory, Data structure and algorithms, Operating systems.

Compiler design, Designing and analysis of algorithm, Design principles of programming languages, Traffic grooming in elastic optical networks.

FUTURE TEACHING/RESEARCH PLAN

As the technology has been evolving over the time, consequently a various new and emerging aspects come into existence very naturally.

Here, it is worthwhile to mention that the courses like Machine learning, IoT, Big data, AI among so many other new emerging fields or trends are drawing attention of researchers or scientists or educators.

So, naturally I didn't choice an exception and considered **Machine learning** and an allied execution tool namely **Python** besides my current research field (traffic grooming in EON) as additional subjects for teaching and/or research purpose, and eventually my field of interests can be extended a bit.

Besides, I have a plan to propose/design an algorithm for achivieing the optimal solution for Routing and Spectrum Allocation problem (which is said to be one of the NP problems) in EON under dynamic traffic generation. Here, it is worth mentioning that spectrum conversters are assumed not to be deployed in the EONs. In this regrad, one of the algorithm designing tools the dynamic programming is considered to be the most fitted appraoch. Moreover, approximation algorithm may also be considered for this purpose as well.

EDUCATION

2016–2020 — National Institute of Technology Durgapur, WB

Doctor of Philosophy in Engineering

Grade: A ·Institute: National Institute of Technology Durgapur
Department: *Computer Science and Engineering*

2006–2008 — The University of Kalyani, Kalyani, Nadia, WB

Master of Technology

Percentage: 81.55 · Institute: The University of Kalyani, Kalyani, Nadia
Department: *Computer Science and Engineering*

1998–2002 — National Institute of Technology Durgapur, WB

Bachelor of Engineering

TCPA: 66.40 ·Institute: National Institute of Technology Durgapur
Department: *Computer Science and Engineering*

1994–1996 West Bengal Council of Higher Secondary Education

Higher Secondary Percentage: 53.60 ·Institute: R. P. V. V.
Department: *Science*

1994 West Bengal Board of Secondary Education

Secondary Percentage: 66.11 ·Institute: R. P. V. V.
Department: *N.A.*

REFERENCES

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ADDRESS

Permanent DSS 4/8 Vidyasagarpally · Benachity · Durgapur · Dist: West Burdwan · West Bengal · PIN:713213

Communication 3/69 Srinagarpally · Benachity · Durgapur· Dist: West Burdwan · West Bengal · PIN:713213

OTHER INFORMATION

Award 2008 · **Topper** · The University of Kalyani, Kalyani, Nadia, WB

FDP 2020 · **Machine Learning** · India Institute of Technology Kanpur

FDP 2021 · **Cyber security** · Brainware University Kolkata

Special Training 2005 · **Teching techniques** · National Institute of Technical Teachers' Training and Research, Kolkata

Reviewer 2020 · **Journal** · International Journal of Communication Systems

Languages English · Intermediate (conversationally moderate)

Hindi · Intermediate (conversationally moderate)

Bengali · Mothertongue

Interests Hearing flute · Listening · Trekking · Cooking

Social Identity Nationality: Indian · Religion: Hindu · Race: Bengali · Category: General

RESEARCH STATEMENT

As it is strongly believed that "The necessity is the mother of invention", I don't opt for a specific/concrete research fields/topics anyway. Nevertheless, an outline of research activities considering a comprehensive research aspects specific to my field of interest is drawn indeed.However, the contemporary

needs/trends in technological evolvement always motivates/invokes researchers for their significant contribution in a certain possible way.

As the technology has been evolving over the time, consequently various new and emerging aspects come into existence very naturally. Eventually, these aspects are modeled and concretized encompassing all relevant perspectives individually and finally introduced as a semester course in the field of education in compliance to the pertinent protocols under the Department of Education. Here, it is worthwhile to mention that the courses like Machine learning, IoT, Big data, AI among so many other new emerging fields are being evolved and drawing the attention of researchers/scientists/educators. Hence, in the next few years I have a plan to teach a few of these subjects (specially Machine learning with an allied execution tool-Python) to analyze and explore their possibilities in fullest extent as I do believe that teaching and research are not two fully distinct strategy to unfold a new and emerging field in any respect. One can teach a new field by having substantial research activities done on the same and vice-versa, because teaching a subject from scratch again and again accumulates substantial experience in this field which in turn can lead to searching an unexplored area which is generally termed as research.

Furthermore, as I have done my research works on traffic grooming in the field of Elastic Optical Network under dynamic environment, I would also like to explore further the next generation of EON, compatible OFDM (orthogonal frequency division multiplexing) probably in its advanced variants, possibilities of all new hardware/software setup, etc., toward the purpose of traffic grooming. Moreover, I considered Machine learning and an allied execution tool namely Python besides my current research field (traffic grooming in EON) as additional subjects for research and/or teaching purposes, and eventually my field of interests can also be extended a bit.

However, in my understanding the research is believed to be an unremitting intensive involvement for searching and/or exploring an unexplored area/field up to its fullest possibilities (at least believed to be fullest) and try to extract some significant findings for our wellbeing. Here, it is worth mentioning that the recognition and segregation of harmfulness (may be evolved as one of the consequences of innovations) must be emphasized and strengthened for true utilization of fruitfulness of an innovation in a proper direction.

TEACHING STATEMENT

I have always been in the teaching profession since my college pass out because I have a great passion for teaching due to its stimulating possibilities and/or experience. In my view, teaching is not about making someone understand, but it does also provide a profound basis for mutual learning. Hence, I do believe that the term teaching itself implies teaching and learning altogether. An another important aspect of teaching is creating an all transparent concept regarding a topic because a learner must be presented with a clear view or explanation of the same. Moreover, in addition to this, in a teaching-learning ambiance, a bidirectional contextual transaction generates various new aspects of a particular topic and unfold so called terms in a different manner, which in turn teaches us (both teachers and learners) to synthesize and analyze the same topic in different ways. In my understanding the fact just discussed is a very magnificent phenomenon as well. Hence, an ideal teaching learning environment invokes my involvement in a great sense. Furthermore, in this regard a subtle consideration is that a true involvement in a teaching learning experience opens up or invokes the scope for exploring a field into its further possibilities, which in turn may lead to a significant consequence-“The Research”.

However, it is worth mentioning that a gradual transformation has been observed in my experience during the last almost two decades in teaching methodology by incorporating various innovative teaching techniques. I also do believe in and adapt to these modern techniques in some way that might have enhanced teaching learning experience in various dimensions. Moreover, besides these modern computer based teaching techniques, the traditional teaching learning process (chalk-duster-blackboard) is sustained at its fullest

extent even in today's world also. So, I have moulded myself in such a manner to adapt a teaching learning technique regardless of its type and pattern anyway. However, in my long term view I have a paln for teaching a few of the emerging subjects like Machine Learning, Python, IoT, etc., among so many others.

In my faculty, for any particular course in a semester I personally treat it as a new subject and start from the scratch each time I am assigned which has a both-way benefit. I can unfold various aspects for the same course from different new angles every time I choose to teach the course. On the other hand, it helps the students/learners to get into the discussion/explanation very easily without prior knowledge as well. I also like to demonstrate practical applications correspond to theories discussed in the lecture class by means of various real life examples. Another important aspect which I emphasize is practical implementations of experiments in the laboratory, where applicable. Next, finding or categorizing the classes of strong and weak students is an inevitably essential and integral part in my teaching duties. Furthermore, several interactive sessions are arranged for those weak students separately and various issues are addressed in addition to remedial lecture classes which are in general for all students. Here, my planning for teaching includes a few core computer science subjects like Automata, Data structure and Algorithm, Design and analysis of algorithm, Compiler Design, etc.

So, finally in my understanding it is believed or felt somehow that a good teaching learning process encompassing a comprehensive strategy implemented by a visualized articulation makes a subject live and perceptive which eventually leads the student community happen (either in professional or social career or both) in a full fledged way.

June 27, 2023