PALLAV KUMAR DEB

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SWAN Lab, Dept. of Computer Science and Engineering
Indian Institute of Technology, Kharagpur 721302

EDUCATION

Indian Institute of Technology, Kharagpur *August 2017 - Present*
Doctor of Philosophy
Department of Computer Science & Engineering

Tezpur University *August 2015 - August 2017*
Master of Technology CGPA: 9.2
Information Technology

Royal Group of Institutes, Gauhati University *August 2010 - August 2014*
Bachelor of Engineering Overall Percentage: 74.39
Department of Computer Science & Engineering

RESEARCH INTERESTS

Networking, resource allocation, fog computing, constrained devices, AI/ML-based solutions, Internet of Things, UAVs, Swarm of UAVs, e-health, THz communications, nano-networks.

WORK EXPERIENCE

SensorDrops Networks Pvt. Ltd., Kharagpur Dec 2018 – Present
R&D Consultant

· Developed multiple Internet of Things (IoT) devices dedicated towards addressing basic societal as well as industrial needs.
· Developed multiple Android applications for interacting with the IoT devices and also for other activities, such as sensing and actuating.
· Worked closely with the founders during the creation of SensorDrops Networks Pvt. Ltd.

Indian Institute of Technology, Kharagpur Jun 2017 – Present
Teaching Assistant

· Programming and Data Structures Lab
· Software Engineering
· Architecture and Protocols for Internet of Things

Tezpur University Jun 2015 – Jun 2017
Teaching Assistant

· Information and Communication Technology
· Introductory Computing
· Computer Graphics
· Computer Organization and Architecture

West Coast Frozen Foods Pvt. Ltd., Mumbai Jul 2014 – Dec 2014
In-house Software Developer

· Assisted in creation of websites.
· Developed smart inventory system for incoming and outgoing packages.

WORK VISITS

Tata Consultancy Services, Innovation Laboratory
Kolkata

Demonstration of IoT-based wireless temperature sensing nodes from SensorDrops Networks Pvt. Ltd.

Calcutta Electric Supply Corporation Limited
Kolkata

Demonstration of IoT-based wireless condition monitoring nodes from SensorDrops Networks Pvt. Ltd.

Ceratizit Limited
Uluberia, West Bengal

Discussion for Industrial IoT and Industry 4.0 from SensorDrops Networks Pvt. Ltd.

PROJECTS

B.E.: Steganography
In this work, we take textual input from the user, which we convert to a picture of any format. We then use the least significant bit (LSB) routines for hiding the picture containing the textual data into another arbitrary picture. We then forward the superimposed image to designated receivers. On the receiving side, we provide routines for separating the images from one another. My team of 2 other members prepared this project towards the completion of our Bachelor of Engineering degree.

M.Tech: Human Activity Recognition from Video
This project lists the series of activities performed by people in a video. It consists of three steps – 1) Recognition of humans and objects in a video frame, 2) Identify nature of movement based on joint movements and angles, and 3) Finalize activity based on the objects that the human is using. This work involves the use of machine learning routines like Convolution Neural Network (CNN) and Hidden Markov Models (HMM). I prepared this project towards the completion of my Masters of Technology degree.

SkopEdge: A Smart Digital Stethoscope 2019 – Present
In this work, we developed a low-cost and easy-to-use digital stethoscope that records heart sounds and automatically counts the number of heartbeats. Due to changing network conditions, the stethoscope changes the quality of the audio files and sends it to remote locations. The results are then made available for analysis by remote doctors along with a visualization for the same. This work has been recently accepted for presentation at the IEEE International Conference on Communications (ICC) 2020, in Dublin, Ireland.
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TECHNICAL STRENGTHS

Programming	C/C++, Java, Python, Android, HTML/PHP, Matlab
Tools	Tensorflow, OpenCV, Keras, and other machine learning frameworks
Software & Tools	MS Office, Latex, Docker

PROFESSIONAL AFFILIATIONS

2020 - Present	IEEE, Student Member
2020 - Present	IEEE Communications Society (ComSoc), Student Member

TEACHING ASSISTANTSHIPS

National Programme on Technology Enhanced Learning (NPTEL) 2020 – Present

- Introduction to Internet of Things

Indian Institute of Technology, Kharagpur 2017 – Present

- Programming and Data Structures Lab
- Software Engineering
- Introduction to Internet of Things

Tezpur University Jun 2015 – Jun 2017

- Information and Communication Technology
- Introductory Computing
- Computer Graphics
- Computer Organization and Architecture

WORKSHOPS AND TALKS

SGRIP-Sponsored Short Term Course on Modern Wireless Networks and IoT October 2019
IIT Kharagpur

Hands-on Session on IoT devices and Android programming.

Guest Lecture: Online Mode June 2020
Jorhat Engineering College

Invited talk on *Introduction to Fog Computing.*

PUBLICATIONS

1. **P. K. Deb**, S. Misra, A. Mukherjee, A. Jamalipour, "SkopEdge: A Traffic-Aware Edge-Based Remote Auscultation Monitor", *IEEE International Conference on Communications (ICC)* 2020, Dublin, Ireland, June 7-11, 2020.
2. S. Misra, **P. K. Deb**, N. Pathak, A. Mukherjee, "Blockchain-Enabled SDN for Securing Fog-Based Resource-Constrained IoT", *IEEE INFOCOM Workshop*, Toronto, Canada, July 6-9 2020.
3. S. Misra, **P. K. Deb**, N. Koppala, A. Mukherjee and S. Mao, "S-Nav: Safety-Aware IoT Navigation Tool for Avoiding COVID-19 Hotspots", in IEEE Internet of Things Journal, doi: 10.1109/JIOT.2020.3037641.
4. **P. K. Deb**, C. Roy, A. Roy and S. Misra, "DEFT: Decentralized Multiuser Computation Offloading in a Fog-Enabled IoV Environment", in IEEE Transactions on Vehicular Technology, doi: 10.1109/TVT.2020.3039514.

ACADEMIC ACHIEVEMENTS

1. Secured national rank in GATE 2015 for securing admission into M.Tech.
2. Received a ***Honorary Mention*** in the 2020 IEEE Communications Society Student Project Competition "*Communications Technology Changing the World*".

ACADEMIC REFEREE SERVICE

IEEE	IEEE Transactions on Mobile Computing
IEEE	IEEE Transactions on Industrial Informatics
IEEE	IEEE Internet of Things Journal
IEEE	IEEE Systems Journal
IEEE	IEEE Journal on Selected Areas of Communications
IEEE	IEEE Internet of Things Magazine
IEEE	IEEE International Conference on Communications
IEEE	IEEE International IOT, Electronics, and Mechatronics Conference

EXTRA-CIRRUCULAR

Co-Organized Counter Strike 2013 - a gaming event in Royal Group of Institutions.

Ranked 1660 in NIIT 8^{th} national aptitude test.

Secured second position in movie making competition 2015 at Tezpur University.

Secured first position in movie making competition 2016 at Tezpur University.

PERSONAL TRAITS

Highly motivated and eager to learn new things.

Strong motivational and leadership skills.

Ability to work as an individual as well as in group.

REFERENCES

Prof. Sudip Misra
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IIT Kharagpur
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Dr. Anandarup Mukherjee
Research Assistant
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University of Cambridge, U.K.
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Dr. Shobhanjana Kalita
Assistant Professor
Dept. of Computer Science and Engineering
Tezpur University
Email: kalitas@tezu.ernet.in

Dr. Arindam Karmakar
Assistant Professor
Dept. of Computer Science and Engineering
Tezpur University
Email: arindam@tezu.ernet.in