

Sukirna Roy

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EDUCATION

• University of Central Florida

Orlando, FL

Master of Science in Computer and Information Sciences; GPA: 4.0/4.0 August, 2019 – December, 2020 (Expected)

- **Courses Taken:** Multicore Programming, Advanced Computer Architecture, Advanced Computer Networks, Network Economics, Design and Analysis of Algorithms, Complex Adaptive Systems

• Indian Institute of Space Science and Technology

Trivandrum, India

Bachelor of Technology in Avionics

August, 2009 – May, 2013

- **Courses Taken:** Software Engineering, Wireless Mesh Networks, Computer Graphics, Linear Algebra, Probability and Statistics, Numerical Analysis, Economics, Physics, Astronomy

LANGUAGES/FRAMEWORKS

- **Languages:** Python 3, Netlogo, C++ [Previous Experience], Visual Basic [Previous Experience]

- **Frameworks:** Jupyter Notebook, Pytorch, AWS, Google Colab, ION-DTN [Previous Experience], ZeroMQ [Previous Experience]

EXPERIENCE

• Indian Space Research Organisation

Hassan, India

Scientist / Engineer

Oct 2013 - June 2019

- **Launch and de-orbit operations for geosats:** Directed and coordinated ground support for launch, early phase and de-orbit orbit operations of GSATs, INSATs IRNSSs and METSAT [5+ launches].
- **On-orbit operations for geosats:** Directed ground segment for on-orbit operations of GSATs, INSATs, IRNSSs and METSAT [Fleet of 25+ satellites].
- **Geosat linked archival system [Starburst MFTP]:** Designed and developed communication back-end for data archival system [100Mbps throughput] over geosat links with 85% cost savings [93,500 USD savings/instance].
- **Low cost Antenna Control System [VisualBasic]:** Engineered and maintained in-house antenna control system capable of tracking geosats with 80% cost savings [12,000 USD savings/instance].
- **Deployment of CCSDS infrastructure:** Delegated deployment of CCSDS compliant infrastructure, ensuring global operability [70+ uplink and downlink chains].
- **Personnel Training Program:** Instructed new inductees and coached them in operational procedures [75+ engineers].

PUBLICATIONS

- **NASA Interplanetary Overlay Network Emulator: Design Principles and Performance Analysis:** Presented and published in proceedings of ISRO Seminar on Computers & Information Technology 2015, evaluating the performance of NASA's ION-DTN in varying link conditions.
- **Enablers of IoT and their Security and Privacy Issues:** Published in Internet of Things (IoT) in 5G Mobile Technologies, by Springer International Publishing AG, Cham, ISBN 978-3-319-30913-2, a survey of the current state of technologies capable of enabling the Internet of Things and their ability to be used as secure channels of communication.

PROJECTS

- **NASA Interplanetary Overlay Network Emulator [C, Bash]:** Designed and coded emulator to evaluate the performance of protocol stacks over varying link conditions. Utilized to evaluate the performance of NASA's ION-DTN.
- **Lockfree concurrent data structures [C++]:** Designed and coded lockfree, linearizable and concurrent stacks, queues and hashmaps using descriptor objects and atomic instructions.
- **Cellular automata based simulations [Netlogo]:** Designed, coded and studied multiple cellular automata based simulations for fire front propagation, epidemic spread and civil violence.

FELLOWSHIPS

- **Fast.ai International Deep Learning Fellowship, 2017 [Jupyter Notebook, Pytorch, AWS]:** Deployed models implementing Linear Regression, CNN, RNN, Transfer Learning, Style Transfer, GAN.