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Yogesh Mandge

Graduate Student, Computer Science, IIT Hyderabad

Education

Indian Institute of Technology Hyderabad, Telangana, India
Master of Technology, Computer Science and Engineering, *Jul' 18 - Jul' 21 (Expected)*
GPA: 9.44/10 (till 4th Semester)

Shri Ram Institute of Science & Technology, Jabalpur, India
Bachelor of Engineering, Computer Science and Engineering, *Jul' 13 - Jul' 17*
GPA: 8.58/10 (Overall)

Work Experience

Indigenous 5G Testbed
Research Assistant *Jul' 18 - Present*

- Working on the development of 5G Core Network Functions (NF) and Multi-access Edge Computing (MEC) platform as per ETSI and 3GPP specifications.
- Developed RESTful HTTP/2 based 5G Core NFs and MEC platform with essential functionalities to support the **end to end data transfer**.
- Developed and demonstrated **real-time video caching** as an application of MEC.
- Currently working on the Orchestration and Management of 5G Core NFs and MEC platform.

Publications

Supriya Tambe, **Yogesh Mandge**, Antony Franklin A, "Performance Study of Multi-Access Edge Computing Deployment in a Virtualized Environment" to appear in *Proceedings of the 5G from Theory to Practice (5GToP) workshop co-located with IEEE 3rd 5G World Forum 2020*, Bangalore, India

Supriya Tambe, Jyoti Tiwari, **Yogesh Mandge**, Antony Franklin A, BheemArjuna Reddy Tamma, "Real-time Video Caching over Low Latency MEC in an OAI LTE Network" poster presented at *25th National Conference on Communications* (NCC), Bangalore, India

Achievements

Qualified Graduate Aptitude Test in Engineering (GATE) CS 2018 with **97.4** percentile
Institute Rank 1: Consistently maintained institute rank 1 over the duration of 4 years at Shri Ram Institute of Science and Technology Jabalpur
Secured **95%** in Oracle Certified Java SE 6 Professional (OCJP) exam. **Certificate ID**: 241835947OCJPJSE6P

Positions of Responsibility

Serving as a **System Administrator** for Networked Wireless Systems (NeWS) lab, Department of CSE, responsible for management and maintenance of Gitlab
Teaching Assistant (TA) for CS5453 Internet of Things under Prof. Antony Franklin in Autumn 2019
Co-hosted a session on **Internet of Things** at "AI and Emerging Technologies (AIET)" summer school jointly organized by IIT Hyderabad and TalentSprint in 2019

Selected Projects

Dependable Network Function Virtualization Orchestrator
Supervisor : Prof. Antony Franklin A *Jun' 20 - Present*

- Working on the design and implementation of a self-sufficient NFV Orchestrator.
- Demonstrated the **lack of reliability** of the current NFV Orchestrator design and alternate solutions.
- Developed and demonstrated a **recoverable NFV Orchestrator** using ETSI OSM.
- Currently working on minimizing downtime and building novel prevention, detection, and recovery techniques for the NFV Orchestrator.

Machine Learning Function Orchestrator
Self Project *Aug' 20 - Present*

- Working on the design and implementation of the Machine Learning Function Orchestrator (MLFO) as per the recommendations by ITU-T.
- Responsible for the creation and deployment of ML pipelines and models in the mobile network with NFs being the source and sink of the information.
- The goal is to minimize human intervention and realize a higher level of intelligence in the mobile network.

Partial Person Re-Identification
CS6780 Surveillance Video Analytics *Jan' 20 - May' 20*

- Reproduced state of the art algorithms i.e., Deep Spatial Feature Reconstruction and Pose Guided Feature Alignment.
- Achieved a **13.5%** increase in Rank-1 accuracy for our novel partial person re-identification model as compared to PGFA.
- Utilized the relationship between partial and global features for efficient person re-identification and human parsing to address occlusion and background clutter.

Event Evolution Tracking from Streaming Social Posts
CS5600 Data Mining *Aug' 19 - Nov' 19*

- Reproduced state of the art algorithms for Event Evolution Tracking from Streaming Social Posts (Twitter tweets).
- Developed novel algorithms to handle highly dynamic social stream and track event evolution patterns i.e., birth, death, growth, and decay in real-time.
- Developed a framework that summarizes the information per event in the stream using word clouds within the current time window.

Research Interests

Network Function Virtualization (NFV), Software Defined Networking (SDN),
Cellular Networks (5G), Edge Computing, Internet of Things (IoT), Distributed Systems,
Machine Learning, Information Retrieval

Skills

Languages: Fluent in C/C++, Python; Familiar with Java, Shell Scripting (Bash)
Web Development: HTML, CSS, JavaScript, PHP, MySQL, MongoDB
Operating System: Windows, Unix/Linux (Ubuntu, Fedora)
Tools: Git, Wireshark, Docker, Open Source MANO, OpenStack, OpenAirInterface, OpenBaton, IoTivity, ns-3

Extra Curricular

Volunteer for the Department of Computer Science and Engineering's social outreach team
Participated in the **5G Hackathon** organized by the Department of Telecommunications, Ministry of Communication, India
Attended ETSI Open Source MANO (OSM) Remote Hackfest #9 from June 1-4 2020
Attended 3GPP SA6 meeting #35 at Hyderabad India from January 13-17 2020
Volunteer for the placement office at IIT Hyderabad