

# Venkatarami Reddy Chintapalli

*Research Scholar, IIT Hyderabad*

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## Education

- 2017- Present **Ph.D.**, *Indian Institute of Technology (IIT)*, Hyderabad, India, **CGPA 8.6**.  
Computer Science & Engineering (NeWS Lab).
- 2011-13 **M.Tech.**, *National Institute of Technology Calicut (NITC)*  
, Calicut, Kerala, India, **CGPA 8.2 (top 5%)**.  
Computer Science & Information Security.
- 2007-11 **B.E.**, *Vignana's Engineering College*, Guntur, Percentage **76.10 (top 3%)**.  
Computer Science & Engineering

## Professional Experience

- June 2013- Dec 2016 **Assistant Professor**, *Dept. of Computer Science and Engineering*, GITAM University.  
Hyderabad, India
- June 2012- May 2013 **Assistant Professor**, *Dept. of Electronics and Computer Engineering*, KLU University.  
Guntur, India
- June 2010- Jan 2012 **System Engineer**, *IBM India Pvt Ltd*, Hyderabad.  
India

## Research Visit

University **Scuola Superiore Sant'Anna, Pisa, Italy**  
Supervisor Dr. Luca Valcarengi  
Period Sept 2019 - Jan 2020

- Description
- As part of bilateral project (Network Slice Life-cycle Management for 5G Mobile Network) between Indian Institute of Technology Hyderabad (IITH) and Scuola Superiore Sant'Anna (SSSA), Pisa.
  - Research visit supported by Scheme for Promotion of Academic and Research Collaboration (SPARC), Government of India.
  - Work on Orchestrating Edge- and Cloud-based Predictive Analytics Services.
  - Proposed a Hybrid Forecast Framework (HFF) running at the network edge or in the cloud to provide forecasting with the performance required by the control loop cycle in Zero-touch network and service management (ZSM) architecture.

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## Ph.D Supervisors

Name Dr. Bheemarjuna Reddy Tamma and Dr. Antony Franklin  
Designation Professor, Associate Professor  
Institute Indian Institute of Technology Hyderabad (IIT-H)  
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url <http://www.iith.ac.in/~tbr/>, <https://www.iith.ac.in/~antony/>

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## Research Interest

- Software Defined Networks (SDN)/Network Function virtualization (NFV) for 5G, Performance isolation in Service Function Chaining and Network Slicing, NFV Orchestration and ML for Network.

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## Journal Publications

- Jorge Martín-Pérez, Koteswararao Kondepu, Danny De Vleeschauwer, **Venkatarami Reddy**, Carlos Guimarães, Andrea Sgambelluri, Luca Valcarenghi, Chrysa Papagianni, and Carlos J. Bernardos "Dimensioning V2N Services in 5G Networks through Forecast-based Scaling" in IEEE Access, 2022.
- **Venkatarami Reddy**, Madhura Adeppady, Bheemarjuna Reddy Tamma and Antony Franklin A "RESTRAIN: Dynamic and Cost-Efficient Resource Management for Addressing Performance Interference in NFV-based Systems" in Elsevier Journal of Network and Computer Application (JNCA), 2022.

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## Conference Publications (in reverse chronological order)

- **Venkatarami Reddy Chintapalli**, Sai Balaram Korrapati, Bheemarjuna Reddy Tamma and Antony Franklin A "NUMASFP: NUMA-aware Dynamic Service Function Chain Placement in Multi-core Servers" in 14th International Conference of Communication Systems and Networks (**COMSNETS**), IEEE, Bangalore, India, Jan 3-9, 2022 (**received Best Paper Award**).
- **Venkatarami Reddy Chintapalli**, Koteswararao Kondepu, Andrea Sgambelluri, Antony Franklin A, Bheemarjuna Reddy Tamma, Piero Castoldi and Luca Valcarenghi "Orchestrating edge- and cloud-based predictive analytics services" In 29th European Conference on Networks and Communications (**EuCNC**) (virtual), IEEE, Dubrovnik, Croatia, June 16-17, 2020.
- Gaurav Garg, **Venkatarami Reddy**, Vanlin Sathya, Antony Franklin A and Bheemarjuna Reddy Tamma "An SLA-Aware Network Function Selection Algorithm for SFCs" In 2nd International Conference on 5G World Forum. (**5GWF**), IEEE, Dresden, Germany, Sept - Oct 2, 2019.
- **Venkatarami Reddy**, Gaurav Garg, Bheemarjuna Reddy Tamma and Antony Franklin A "Interference Aware Network Function Selection Algorithm for Next Generation Networks" In 3rd Workshop on Performance Issues in Virtualized Environments and Software Defined Networking (PVE-SDN) co-located with (**NetSoft**), IEEE, Paris, France, 24-28 June 2019.

- Gaurav Garg, **Venkatarami Reddy**, Antony Franklin A and Bheemarjuna Reddy Tamma "DAVIS: Delay-Aware VNF Selection Algorithm for Service Function Chaining" in 11th International Conference of Communication Systems and Networks (**COMSNETS**), IEEE, Bangalore, India, Jan 7-11, 2019. (Poster)
- Thomas Valerrian Pasca Santhappan, Nabhasmita Sen, **Venkatarami Reddy**, Bheemarjuna Reddy Tamma and Antony Franklin A "A Framework for Integrating MPTCP over LWA: A Testbed Evaluation" in 12th International Workshop on Wireless Network Testbeds, Experimental Evaluation & Characterization co-located with Mobile Computing and Networking (**MobiCom**), ACM, Delhi, India, Oct 29 - Nov 2, 2018.
- Selected Proposal titled "An Efficient Traffic aware Scaling Mechanism for Service Function Chains in NFV" in in Second Asian Students Symposium on Emerging Technologies (ASSET) held in conjunction with **COMSNETS**, IEEE, Bangalore, India, Jan 4-6, 2018. (one page proposal)

## Computer skills

Languages	C, C++, Python, Bash, Java, Latex
Open Source	OpenAirInterface (OAI), OSM (NFV MANO), OpenStack, OpenNetVM
ML	Deep Learning, Reinforcement Learning
Techniques	
Simulator	Mininet

## Achievements

- Qualified in APSET 2016
- AIR 891 in GATE 2008

## Volunteer/Organizer

- National Conference on Communications (NCC) IEEE, IIT Hyderabad, 2018
- A Short-Term Course on Open-Prototyping Methodologies for 5G Systems (through GIAN), Dec 26-30, 2017 IIT Hyderabad
- International Symposium on Biocomputing (ISB) ACM, jointly organized by the NIT Calicut, India, and the IUPUI, USA, 2010

## Professional Affiliations

- Member, IEEE
- Member, ACM

## Travel and Presentation

- Presented paper at conference COMSNETS 2022
- Attended IEEE ComSoc School Series UK and Ireland virtual event 2020
- Attended ACM SIGCOMM 2020 (Virtual Conference)
- Presented paper at conference EuCNC 2020 (Virtual)

- Attended 8th OSM Hackfest 2019, Italy
- Received Grant from IIT-H and Presented Paper at conference 5GWF 2019, Germany
- Received Travel Grant and attended COMSNETS 2022, India
- Received Travel Grant from IIT-H and attended Mobicom 2018, India
- Received Travel Grant and attended COMSNETS 2018, India
- Attended conference on Information and Communications Technology for Development(ICT4D) 2017, India

## Teaching Assistant (TA)

- Data structures and Algorithms, Introduction to C Programming 2017, IIT Hyderabad
- Advance topics in Wireless Networks 2019, IIT Hyderabad
- Networks & Wireless Security 2018, 2020, IIT Hyderabad
- Network Security 2021, IIT Hyderabad
- Networked Wireless Systems 2021, IIT Hyderabad

## Graduate Course work

- Introduction to Wireless Networks
- Wireless Sensor Networks
- Networked Wireless Systems
- Computer Network Security
- Pervasive Computing
- Optimization Techniques
- Advanced Data structures and Algorithms

## PhD Thesis Work (ongoing)

Title *Towards Ensuring Isolation between Services with Effective Resource Utilization in NFV-based platform*

Description Working towards the following activities:

- Analysis of performance interference of different VNFs when they run together and understanding VNFs behaviour.
- Design efficient algorithm which dynamically adjusts contended system resources (such as Last Level Cache (LLC) and Memory Bandwidth (MB) among the services (running as VNFs) to avoid performance interference and improve resource utilization.
- Develop an efficient interference-aware placement and scaling mechanism in emulated multi-PoP environment (containernet).
- Builds an interference prediction model for each application that enabling calculate the performance degradation that the application suffers in any co-location.

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### Reference 1

Name Dr. Bheemarjuna Reddy Tamma (**Guide**)  
Designation Professor, Department of Computer Science & Engg, IIT Hyderabad.  
Email tbr@iith.ac.in  
Homepage <http://www.iith.ac.in/~tbr/>  
Phone +919494414697

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### Reference 2

Name Dr. Antony Franklin A (**Co-guide**)  
Designation Associate Professor, Department of Computer Science & Engg, IIT Hyderabad, India.  
Email antony.franklin@iith.ac.in  
Homepage <http://www.iith.ac.in/~antony/>  
Phone +917032987052

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### Reference 3

Name Dr. Luca Valcarenghi (**Supervisor at the time of research visit**)  
Designation Associate Professor, Scuola Superiore Sant'Anna, Pisa, Italy.  
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Phone +39 050 882138