Sankaran 'Shifu' Vaidyanathan

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Education

Sep '19–Jun '21 (expected)	**M.S., Computer Science**, *University of Massachusetts Amherst* **Courses:** Machine Learning, Research Methods in Empirical CS, Quantum Information Systems
Jun '13–Aug '17	**B.E., Electrical and Electronics Engineering**, *SSN College of Engineering, Anna University* **Thesis Project**: *Control of Autonomous Quadrotor for Real-Time Object Tracking* Built an APM2.6 based quadrotor that tracked and followed objects selected from a PC interface. Implemented Lucas-Kanade optical flow and Kalman filter based video stabilization.

Research Experience

Jul '17–Jun '19	**Project Associate**, *Robert Bosch Centre for Data Science and Artificial Intelligence, IIT Madras*

- **Research Areas:** Machine Learning, Network Science, Social Network Analysis, Deep Learning
- Extended modularity maximization methods for clustering on hypergraphs, and developed a method for improving clustering quality by iteratively balancing hyperedge cuts. Advised by Prof. Balaraman Ravindran, IITM and Prof. Srinivasan Parthasarathy, The Ohio State University.
- Set up a Kubernetes-based GPU cluster for the lab (50 GPUs and 70+ users at the time) and served as a system administrator.
- **Courses:** Deep Learning, Probabilistic Graphical Models, Linear Algebra and Random Processes

Jun '16–Aug '16	**Research Intern**, *RISE-IIL Lab, Department of CSE, IIT Madras* Worked on extending self-organizing maps for end-to-end clustering with neural networks. Advised by Prof. Balaraman Ravindran.

Teaching Experience

Jan '19–May '19	**Teaching Assistant, Machine Learning**, *Certification in Technology and Management, IIT Madras and IIM Bangalore* An online course run by Prof. Balaraman Ravindran. Developed interactive iPython demos with narration, and set programming assignments and exams.

Publications

Complex Networks '19	**A New Measure of Modularity in Hypergraphs: Theoretical Insights and Implications for Effective Clustering** Tarun Kumar*, **Sankaran Vaidyanathan***, Harini Ananthapadmanabhan, Srinivasan Parthasarathy, Balaraman Ravindran

Technical Skills

- **Programming Languages**: Python, C++
- **Frameworks**: TensorFlow, sklearn, OpenCV, Processing
- **Tools and Platforms**: Linux, Kubernetes, LaTeX, Git, Jupyter, Arduino

Extracurricular Activities

- **Playwriting**: Scriptwriter for Lights Out Please, SSN's theatre group.
 Wrote and produced a 90-minute show staged at Alliance Française of Madras.
- **Teach-a-School**: An initiative by SSN Lakshya; visited government schools for underprivileged children (grades 6 to 8) to teach basic math and English.