Arjun Bakshi

bakshi.11@osu.edu
https://abaxi.github.io/

Research Areas

Wireless Communication Systems, Data Mining (Text, Time-series, Graph data), Machine Learning

Education

Ph.D Computer Science and Engineering, The Ohio State University — Aug 2013 - present

- Advisor: Dr. Kannan S. Athreya
- Major: Networking
- Minors: Artificial Intelligence, Algorithms

M.S. Computer Science, University of Cincinnati — Aug 2010 - May 2013

- Thesis on Non-forced Rule Based Classification

B.Eng., Information Technology, University of Mumbai — Aug 2006 - May 2010

Research Experience

Graduate Research Associate, CoSyNe Research Group, OSU — May 2016 - present

- *Full Duplex System for Vehicular Networks:* Communication systems in vehicular networks face issues like dynamic environment, fast changing network size and membership, and high coordination costs. This project addresses those issues, and enables full-duplex communication between cars that is resilient to interference from other broadcast messages. The system is well suited for short road safety messages.
- *Low Latency MAC for IoT Devices:* A MAC protocol designed specifically for IoT traffic in a dense IoT deployment. It eliminates the large channel access delay experienced by such devices by making interference power predictable across space and time, and adapting to an appropriate rate and modulation.
- *Pattern Based Community Detection in Graph Datasets:* The goal of this project is to add supervision to the process of community detection in large graphs. We extract telltale patterns from a small seed set of communities and use them to greatly improve the quality of detected communities.
- *RF+ML Projects:* A group of projects exploring the application of machine learning ideas and models to wireless problems such as device fingerprinting, channel modelling, and user localization.

Student Researcher NE, Cincinnati Children's Hospital Medical Center — May 2012 - May 2013

- *Quantitative Image Analysis of Brain Tumor Histopathology.:* High throughput medical imaging generates images that are good candidates for automated, data driven analysis. This project presents a pipeline for efficiently identifying patterns that can be used to detect gene expression from H&E stained biopsy images. poster

Teaching Experience

Graduate Teaching Assistant, Department of Computer Science, OSU

- CSE 5243: Introduction to Data Mining — August, 2015 - May, 2016
  - **Eleanor Quinlan Memorial Award** for teaching
- CSE 1110: Introduction to Computing Technology — August, 2013 - August, 2015

Publications

- **Arjun Bakshi**, Srinivasan Parthasarathy, Kannan Srinivasan, "Semi-Supervised Community Detection Using Structure and Size", IEEE International Conference on Data Mining, ICDM 2018. paper/ slides/ code
- Tanmoy Das, Lu Chen, Rupam Kundu, **Arjun Bakshi**, Prasun Sinha, Kannan Srinivasan, Gaurav Bansal, and Takayuki Shimizu. "CoReCast: Collision Resilient Broadcasting in Vehicular Networks." ACM International Conference on Mobile Systems, Applications, and Services, ACM MobiSys, 2018. paper/ slides/ video
- **Arjun Bakshi**, Lu Chen, Kannan Srinivasan, C. Emre Koksal, and Atilla Eryilmaz. "*EMIT: An efficient MAC paradigm for the Internet of Things.*" IEEE International Conference on Computer Communications, IEEE INFOCOM, 2016. paper
- Chao Wu, **Arjun Bakshi**, Bruce Aronow, Anil Jegga, and Raj Bhatnagar. "*A Biclustering Algorithm to Discover Functional Modules from ENCODE ChIP-Seq Data.*" IEEE International Conference on Data Mining Workshops, IEEE ICDM Workshops, 2013. paper
- **Arjun Bakshi**, and Raj Bhatnagar. "*Learning cost-sensitive rules for non-forced classification.*" IEEE International Conference on Data Mining Workshops, IEEE ICDM Workshops, 2012. paper

Technical Skills

- Programming Languages: Python, MATLAB, C++
- Libraries and frameworks
  - GNU Radio Programming for USRPs
  - Keras, SciKit-Learn for Machine Learning

References

Dr. Kannan Srinivasan Athreya (srinivasan.115@osu.edu)

Dr. Srinivasan Parthasarathy (parthasarathy.2@osu.edu)