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Indian Institute of Technology Bombay

ACADEMIC DETAILS

M.Tech + Ph.D	Communication and Signal Processing	IIT Bombay	Pursuing	8.23
B.Tech	Electronics and Communication Engineering	NIT Bhopal	2012	7.66
Inter	Maths, Physics, Chemistry	Sri Chaitanya	2008	95.1
10^{th}	Andhra Pradesh State Board	Sree Bharathi	2006	82.83

PUBLICATIONS

- **Santosh Fatale, R. Sri Prakash and Sharayu Moharir, "Caching Policies for Transient Data," IEEE Transactions on Communications 2020.**
  - Designed a new caching technique called Remove Least Expected (RLE) to improve cache hits.
  - Obtained an approximate formula to calculate cache hits for policies Least Recently Used (LRU), Random, Store Most Popular (SMP) for single cache.
  - Extended the approximation of calculating cache hits formula to multiple cache network.
- **R. Sri Prakash, Sharayu Moharir, "Caching Static and Transient Data," MobiCom 2018.**
  - Calculated upper bound on cache hits for any policy and approximation for FIFO policy.
  - Proposed a static caching policy known as split cache policy which reaches the upper bound.
  - The policy proposed is robust for data of different sizes, static and transient data.
- **R. Sri Prakash, Nikhil Karamchandani, Veeraruna Kavitha, and Sharayu Moharir, "Partial Service Caching at the Edge," Wi-opt 2020.**
  - Modeled Dynamic caching at edge as Markov Decision Process (MDP) and obtained the solution.
  - Proposed a caching policy Arrival Based Caching (ABC) policy which is computationally less expensive and performance is indistinguishable from MDP policy (optimal policy).

COURSE PROJECTS

- **Simulation of Cellular system:** (Instructor: Prof. Abhay Karandikar, IIT Bombay) [Jan'18 - Apr'18]
  - Computed SIR, blocking probability for different cluster sizes and sectoring. Analyzed handover process and ping-pong rate for different user mobilities and hysteresis values.
  - Analyzed BER performance for space and time diversity in a slow, flat fading Rayleigh channel.
- **Basic Image Editor:** (Instructor: Prof. Amit Sethi, IIT Bombay) [Jul'18 - Nov'18]
  - Developed a GUI in Python to perform multiple operations on images.
  - Showcased Histogram Equalization, Log Transform, Gamma Correction, Blurring, Sharpening, Median filtering, Segmentation and some other image processing techniques in the application.
- **Implementation of Adaptive filters:** (Instructor: Prof. Kumar Appaiah, IIT Bombay) [Jul'17 - Nov'17]
  - Implemented LMS algorithm and its variants, Wiener filter, Kalman filter, adaptive IIR filter.

TEACHING ASSISTANT DUTIES

- **Communication Networks:** Design and evaluation of assignments for better understanding of course. It involves socket programming in C and basic networking tools in Linux (traceroute, arp,...).[Jan'20-present]
- **Statistical Signal Analysis:** Assisted the instructor in course for PG students. Responsibilities include conducting, tutorials, exams and help instructor in setting question papers, assignments. [Jun'18-Nov'19]
- **Communication lab:** The lab experiments mainly focuses on understanding of Digital and Analog communication blocks used at transmitter and receiver. GNU Radio is used to model these blocks. [Jun'17-Nov'17]
- **Texas Instrument Digital Signal Processing lab:** The experiments mainly focuses on implementation of Digital Signal Processing (DSP) concepts on Texas Instrument Digital Signal Processing kit. Code Composer Studio is used as the interface to program the DSP processor. [Jan'17-May'17]

TECHNICAL SKILLS

- **Languages:** C, C++, Java, Python, HTML • **Database:** MySQL • **Script:** Java, Shell, Perl
- **Tools:** LaTeX, Gnu-Radio, CST microwave studio, Matlab, Wireshark.

ACHIEVEMENTS

- Received **best Teaching Assistantship award** for 2 consecutive years in Statistical Signal Analysis course.
- Won **5 minutes research story telling** competition conducted in the Electrical department IIT Bombay.