V. Arvind Rameshwar

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Education

- **Indian Institute of Science** — Bengaluru, India
  PhD in Electrical Communication Engineering; GPA: 9.4/10 — *Aug. 2018 – present*
- **Birla Institute of Technology and Science, Pilani - Hyderabad Campus** — Hyderabad, India
  B.E. (Hons.) in Electronics and Communication; GPA: 9.93/10 — *Aug. 2014 – July 2018*
- **Padma Seshadri Bala Bhavan Senior Secondary School** — Chennai, India
  High School; CBSE Class XII: 97.6% — *1999 – 2014*

Experience

- **Research Intern, Indian Institute of Science** — Bengaluru, India
  Advisor: Prof. Navin Kashyap — *Jan. 2018 – June 2018*
  - **Secure Regenerating Codes**: Studied bounds on capacity of regenerating code-based secure distributed systems, and capacity-achieving coding schemes, as part of final-year undergraduate thesis. In collaboration with Prof. Kashyap, came up with an explicit code construction for achieving secrecy capacity at the Minimum Storage Regeneration (MSR) point, for all values of system parameters. Work accepted to the National Conference on Communications, 2019.
- **Summer Research Intern, IIIT Hyderabad** — Hyderabad, India
  Advisor: Dr. V. Lalitha — *May 2017 – July 2017*
  - **Maximally Recoverable Codes for Product Topologies**: Studied literature on Maximally Recoverable Codes, and worked on the sufficiency of the *regularity* condition, for restricted cases, for a grid-like erasure pattern to be recoverable.
- **Summer Research Intern, Chennai Mathematical Institute** — Chennai, India
  Advisor: Dr. Prajakta Nimbhorkar — *May 2016 – June 2016*
  - **Optimal Matchings in Bipartite Graphs**: Studied algorithms for matchings on bipartite graphs, that meet optimality criteria such as *fairness, popularity*, and *rank-maximality*. In collaboration with Prof. Nimbhorkar, came up with a linear-time algorithm for dynamic rank-maximal matchings. Work accepted to COCOON, 2017, Hong Kong.
- **Teaching Assistant, BITS Hyderabad** — Hyderabad, India
  Course: Signals and Systems — *Jan. 2017 – May 2017*

Projects

- **COVID-19 Infection Rate Estimator**: Part of a project involving graduate students and professors at IISc, which involved building an estimator of the actual daily number of new COVID-19 infections in states across India, based on information about the number of hospitalizations each day. Simulator can be found at **this link**.
- **Photonic Crystal-based Ring Resonator**: Analyzed the response of silicon photonic crystal lattices under longitudinal and shear stress. Obtained results on shift of resonant wavelength as a function of applied stress, via simulations. Work accepted to ICMAP, 2018.

Coursework

- **Indian Institute of Science**: Digital Communication, Communication Networks, Random Processes, Information Theory and Coding, Error-Control Codes, Stochastic Processes and Queueing Theory, Detection and Estimation, Topics in Computation over Networks, Wireless Communication, Finite-State Channels, Topics in Stochastic Approximation, Reinforcement Learning.

Honors and Awards

- Part of a team that won the Qualcomm Innovation Fellowship India, 2020.
- Gold medallist, BITS Pilani, Hyderabad Campus, for being ranked first across streams.
- Merit Scholarship in every semester, for the top 1% of BITS Pilani, Hyderabad Campus.
- Among top 1% percent of students taking up the CBSE exit exam, 2014.
- KVPY Fellowship (Mentorship scheme), 2013, awarded by the Department of Science and Technology, Government of India.
- NTSE Scholarship, 2008, awarded by the Government of India.

Computer Skills

- MATLAB, LaTeX

Publications

Journal

[1] P. Nimbhorkar and A. R. V, "Dynamic rank-maximal and popular matchings," *J. Comb. Optim.*, vol. 37, no. 2, pp. 523–545, 2019

Conference

[1] P. Nimbhorkar and A. R. V, "Dynamic rank-maximal matchings," in *Computing and Combinatorics - 23rd International Conference, COCOON 2017, Hong Kong, China, August 3-5, 2017, Proceedings* (Y. Cao and J. Chen, eds.), vol. 10392 of *Lecture Notes in Computer Science*, pp. 433–444, Springer, 2017

[2] D. Shivakrishna, V. A. Rameshwar, V. Lalitha, and B. Sasidharan, "On maximally recoverable codes for product topologies," in *2018 Twenty Fourth National Conference on Communications (NCC)*, pp. 1–6, Feb 2018

[3] V. A. Rameshwar, D. Aditya, M. Balasubramanian, U. P. Lakshmi, and P. K. Pattnaik, "Effect of longitudinal and shear stress on photonic crystal based ring resonator," in *2018 3rd International Conference on Microwave and Photonics (ICMAP)*, pp. 1–2, Feb 2018

[4] V. A. Rameshwar and N. Kashyap, "Achieving secrecy capacity of minimum storage regenerating codes for all feasible (n, k, d) parameter values," in *2019 National Conference on Communications (NCC)*, pp. 1–6, 2019

[5] V. A. Rameshwar and N. Kashyap, "Computable lower bounds for capacities of input-driven finite-state channels," in *Proc. 2020 Intl. Symp. Information Theory. (ISIT 2020),* Los Angeles, California, USA, Jun 21–26, 2020

[6] V. A. Rameshwar, A. M. Reghu, and N. Kashyap, "On the capacity of the flash memory channel with feedback," in *2020 International Symposium on Information Theory and its Applications (ISITA2020)*, (Kapolei, USA), Oct. 2020