

Anuj Kumar Yadav

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Education

Swiss Federal Institute of Technology in Lausanne (EPFL)

PhD in Computer & Communication Sciences

Advisors: Prof. Yanina Shkel & Prof. Michael Gastpar

Lausanne, Switzerland

2022–2027 (Expected)

University of Bristol

Visiting Student, School of Mathematics

Advisor: Prof. Sidharth (Sid) Jaggi

England, U.K.

2021

Indian Institute of Technology Patna (IIT-P)

B.Tech in Electrical Engineering

Advisors: Prof. Preetam Kumar

Prof. Amitalok Budkuley (IIT Kharagpur)

Patna, India

2018–22

Research Interests

Information & Coding Theory ∪ Applied Probability & Statistics ∪ Privacy & Cryptography

Industry Experience

Nokia Bell Labs - Research Scientist Intern

Robust Passive Optical Networks

Advisors: Dr. Christoph Fuellner & Dr. Rene Bonk

Stuttgart, Germany

June 2024 – August 2024

Publications

Remark: Publications marked with **(A2Z)** at the beginning follow alphabetical author order. (*) represents equal contributions.

• Journals:

1. A. K. Yadav and P. Kumar, "Oblivious Transfer over Compound Binary Erasure Channels", 2022 IEEE Communications Letters (COMML).
2. **(A2Z)** *A. J. Budkuley, *P. Joshi, *M. Mamindlapally, and *A. K. Yadav, "On Reverse Elastic Channels and the Asymmetry of Commitment Capacity over Channels with Elasticity", 2022 IEEE Journal on Selected Areas in Communications (JSAC). [\[Blog by Editor in Chief of IEEE JSAC\]](#)

• Conferences / Workshops:

1. A. K. Yadav and Y. Y. Shkel, "Approximation Guarantees for Minimum Rényi Entropy Couplings", 2025 IEEE International Symposium on Information Theory (ISIT), Ann Arbor, USA.
2. A. K. Yadav, M. Mamindlapally, A. J. Budkuley, "Leveraging Spherical Codes for Commitment over Gaussian UNCs", 2025 International Workshop on Code-based Cryptography @ Eurocrypt, Madrid, Spain.
3. C. Füllner, A. K. Yadav, R. Bonk, "DSP-Assisted In-Vivo Health Monitoring for ≥ 50 G PON", 2025 Optical Fiber Communication Conference (OFC), San Francisco, USA.
4. A. K. Yadav, M. Mamindlapally, A. J. Budkuley, "Wiretapped Commitment over Binary Channels", 2024 IEEE International Symposium on Information Theory (ISIT), Athens, Greece.
5. *A. K. Yadav and *Y. Y. Shkel, "Information Spectrum Converse for Minimum Entropy Couplings and Functional Representations", 2023 IEEE International Symposium on Information Theory (ISIT), Taipei, Taiwan.

6. **(A2Z)** *A. J. Budkuley, *P. Joshi, *M. Mamindlapally, and *A. K. Yadav, "On the (Im)possibility of Commitment Over Gaussian UNCs", 2023 IEEE International Symposium on Information Theory (ISIT), Taipei, Taiwan.
7. **(A2Z)** *A. J. Budkuley, *P. Joshi, *M. Mamindlapally, and *A. K. Yadav, "Commitment over Unreliable Noisy Channels: When Awareness Meets Control", 2022 IEEE Information Theory Workshop (ITW), Mumbai, India.
8. A. K. Yadav, M. A. Mohammadi, Y. Zhang, A. J. Budkuley and S. Jaggi, "New Results on AVCs with Omniscient and Myopic Adversaries", 2022 IEEE International Symposium on Information Theory (ISIT), Espoo, Finland.
9. A. K. Yadav, M. Mamindlapally, P. Joshi, and A. J. Budkuley, "On Commitment over General Compound Channels", 2022 IEEE International Conference on Communication Systems and Networks (COMSNETS), Bangalore, India.
10. **(A2Z)** *A. J. Budkuley, *P. Joshi, *M. Mamindlapally, and *A. K. Yadav, "On the Commitment Capacity of Reverse Elastic Channels", 2021 IEEE Information Theory Workshop (ITW), Kanazawa, Japan.
11. A. K. Yadav, M. Mamindlapally, A. J. Budkuley and M. Mishra, "Commitment over Compound Binary Symmetric Channels", 2021 (IEEE) National Conference on Communications (NCC), Kanpur, India.
12. M. Mamindlapally, A. K. Yadav, M. Mishra and A. J. Budkuley, "Commitment Capacity under Cost Constraints", 2021 IEEE International Symposium on Information Theory (ISIT), Melbourne, Australia.

Posters & Talks

1. Conference Presentation on "Minimum Rényi Entropy Couplings (and Applications)", at 2025 INFORMS Applied Probability Conference (APS), Atlanta, USA. [[Slides](#)]
2. Conference Presentation on "Approximation Guarantees for Minimum Rényi Entropy Functional Representations", at 2025 IEEE International Symposium on Information Theory (ISIT), Ann Arbor, USA. [[Slides](#)]
3. Conference Presentation on "Leveraging Spherical Codes for Commitment over Gaussian UNCs", at 2025 Eurocrypt, Madrid, Spain. [[Slides](#)]
4. Poster Presentation on "Minimum Rényi Entropy Couplings", at 2025 IEEE European School of Information Theory (ESIT), Ancona, Italy. [[Poster](#)]
5. Poster Presentation on "Information Spectrum Converse for Minimum Entropy Couplings and Functional Representations", at 2023 IEEE European School of Information Theory (ESIT), Bristol, UK. [[Poster](#)]
6. Conference Presentation on "On the (Im)possibility of Commitment Over Gaussian Unfair Noisy Channels" at 2023 IEEE International Symposium on Information Theory (ISIT), Taipei, Taiwan. [[Slides](#)]
7. Conference Presentation on "Information Spectrum Converse for Minimum Entropy Couplings and Functional Representations" at 2023 IEEE International Symposium on Information Theory (ISIT), Taipei, Taiwan. [[Slides](#)]
8. P. Joshi, M. Mamindlapally, A. K. Yadav, M. Mishra, and A. J. Budkuley, "Commitment over Unreliable Channels", 2021 IEEE ISIT Recent Results, Melbourne, Australia. [[Abstract](#)] [[Slides](#)]
9. Poster Presentation on "Role of Costs in Commitment over Noisy Channels", at 2021 IEEE North American School of Information Theory (NASIT), UBC Canada. [[Poster](#)]
10. Poster Presentation on "Rate Positivity for Arbitrarily Varying Channels", at 2021 Croucher Summer Course in Information Theory (CSCIT), CUHK, Hong Kong. [[Abstract](#)] [[Poster](#)]
11. Conference Presentation on "Commitment over Compound Binary Symmetric Channels" at 2021 (IEEE) National Conference on Communications (NCC), Kanpur, India. [[Slides](#)] [[Video](#)]
12. Talk on "Commitment Capacity under Cost Constraints" at Laboratoire ETIS, ENSEA, CNRS, France. [[Slides](#)]

Academic/Research activities

Teaching Assistant (EPFL) :

- **COM-302**: Principles of Digital Communications [Spring '25]
- **COM-417**: Advanced Probability and Applications [Spring '24, Fall '24]
- **COM-202**: Signal Processing [Fall '23]
- **EE-205**: Signals and Systems [Spring '23]

Reviewer for :

- IEEE Transactions on Communications
- 2025 IEEE International Symposium on Information Theory (ISIT)
- 2023 IEEE International Symposium on Information Theory (ISIT)
- 2022 IEEE Information Theory Workshop (ITW)

Awards & Achievements

Institute Proficiency Award, IIT Patna

December 2022

- Awarded the "Institute Proficiency Award" for the best Bachelor's Thesis titled "Secure Multiparty Computation: Information-theoretic Oblivious Transfer" in my cohort for the academic year 2021-22.

IEEE ITSoc D & I Undergraduate Scholarship

June 2021

- Awarded IEEE Information Theory Society membership by ITSoc and the opportunity to virtually attend ISIT 2021 and various summer schools organized by ITSoc, on the basis of undergraduate research in Information Theory.

Prime Minister's Scholarship Scheme (PMSS)

2018-2022

- Received PMSS scholarship award of 30,000 INR annually by Ministry of Home Affairs, Government of India for four consecutive years on the basis of Academic Merit in Bachelors at IIT Patna.

Key Courses

Information Theory and Coding, Advanced Topics in Information Theory, Machine Learning, Advanced Probability and Applications, Learning Theory, Foundations of Data Science, Wireless Communications, Control Theory, Statistical Theory, Information-theoretic Cryptography, Number Theory in Cryptography.

Technical Skills

Programming: Python, C, MySQL, Verilog.
Software & Tools: \LaTeX , MATLAB, Simulink, LTspice.

Extracurricular Activities

- Contingent Leader of IIT Patna, at 10th Inter-IIT Technical Meet, 2022.
- Secretary, Students' Technical Council, IIT Patna. (2021-22)
- Core Member of Students' Association for Alumni Relations (SAAR), IIT Patna. (April '19 - April '21)
- Coordinator, Flagship Events, Celesta - Annual Techno-Management fest of IIT Patna. (May '20 - March '21)
- Member of the National Service Scheme (NSS) team at IIT Patna. (July '18- July '19)

References

- **Prof. Yanina Shkel** - EPFL.
- **Prof. Michael Gastpar** - EPFL.
- **Prof. Sidharth Jaggi** - University of Bristol.
- **Prof. Amitalok Budkuley** - IIT Kharagpur.
- **Prof. Preetam Kumar** - IIT Patna.
- **Dr. Rene Bonk** - Nokia Bell Labs.