

Sourbh Bhadane

CONTACT INFORMATION

Email: snb62@cornell.edu
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[Scholar](#), [GitHub](#)

RESEARCH INTERESTS

Causal Inference, Machine Learning, Data Compression, Information Theory, Statistical Inference.

EDUCATION

Cornell University

Ph.D. in Electrical and Computer Engineering (Ongoing) 2017 – 2023 (expected Aug)

- Advisors: [Aaron B. Wagner](#) and [Jayadev Acharya](#).
- Thesis Committee: [Aaron B. Wagner](#), [Jayadev Acharya](#), [Kilian Weinberger](#), [Ziv Goldfeld](#).

Indian Institute of Technology Madras

B.Tech. and M.Tech in Electrical Engineering 2012 – 2017

- Thesis: "Locally Recoverable Codes With Availability".
- Advisor: [Andrew Thangaraj](#).

PUBLICATIONS AND PREPRINTS

- J. Acharya, **S. Bhadane**, A. Bhattacharya, S. Kandasamy, Z. Sun.
SAMPLE COMPLEXITY OF DISTINGUISHING CAUSE FROM EFFECT.
In Submission.
- **S. Bhadane**, A.B. Wagner, J. Ballé.
DO NEURAL NETWORKS COMPRESS MANIFOLDS OPTIMALLY?
Information Theory Workshop, ITW 2022. [arXiv](#)
- **S. Bhadane**, A.B. Wagner.
ON ONE-BIT QUANTIZATION.
International Symposium on Information Theory, ISIT 2022. [arXiv](#)
- **S. Bhadane**, A.B. Wagner, J. Acharya.
PRINCIPAL BIT ANALYSIS: AUTOENCODING WITH SCHUR-CONCAVE LOSS.
International Conference on Machine Learning, ICML 2021. [arXiv](#)
- A.B. Wagner, E.L. Hill, S.E. Ryan, Z. Sun, G. Deng, **S. Bhadane**, V.H. Martinez, P. Wu, D. Li, A. Anand, J. Acharya, D.S. Matteson.
SOCIAL DISTANCING MERELY STABILIZED COVID-19 IN THE UNITED STATES.
Stat 2020.
- J. Acharya, **S. Bhadane**, P. Indyk, Z. Sun.
ENTROPY ESTIMATION OF DISTRIBUTIONS IN CONSTANT SPACE.
Conference on Neural Information Processing Systems, NeurIPS 2019. [arXiv](#)
- **S. Bhadane**, A. Thangaraj.
UNEQUAL LOCALITY AND RECOVERY FOR LOCALLY RECOVERABLE CODES WITH AVAILABILITY.
National Conference on Communications, NCC 2017. [arXiv](#)
- A.K. Gulati, **S. Bhadane**, J. Samuel, H. Ramachandran, R.D. Koilpillai.
IITMSAT: INNOVATIVE PACKET PROTOCOL AND CONCEPT OF OPERATIONS.
AIAA/USU Conference on Small Satellites, SmallSat 2016.
- J. Mevada, J. Samuel, **S. Bhadane**, A.K. Gulati, R.D. Koilpillai.
DESIGN AND IMPLEMENTATION OF A ROBUST DOWNLINK COMMUNICATION SYSTEM FOR NANOSATELLITES.
IEEE International Conference on Space Science and Communications, IconSpace 2015.

TALKS AND POSTERS	<ul style="list-style-type: none"> • Talk: ITW, MUMBAI 2022 • Talk: ISIT, FINLAND 2022 • Talk: (recording) ICML (VIRTUAL) 2021 • Poster: STANFORD COMPRESSION WORKSHOP (VIRTUAL) 2021 • Talk: (recording) WORKSHOP ON LOCAL ALGORITHMS (VIRTUAL) 2020 • Poster: INFORMATION THEORY AND APPLICATIONS (ITA), SAN DIEGO 2019
TEACHING EXPERIENCE	<p>Instructor</p> <p>CORNELL PRISON EDUCATION PROGRAM Spring, Fall 2022</p> <ul style="list-style-type: none"> • Independent instructor of a community college mathematics course for incarcerated students at the Auburn and Five Points Correctional Facilities via the Cornell Prison Education Program. • Designed course content including lectures, homeworks and exams. <p>Teaching Assistant</p> <p>ECE 2720: DATA SCIENCE FOR ENGINEERS Spring 2022, Fall 2019</p> <ul style="list-style-type: none"> • Produced course content including lecture notes used as primary reference for the course. • Led discussion sections, conducted office hours and graded exams. <p>Grader</p> <p>ECE 5620: FUNDAMENTALS OF DATA COMPRESSION Spring 2021</p> <p>ECE 4200 (4950): FUNDAMENTALS OF MACHINE LEARNING Spring 2018-20, Fall 2020-21</p> <ul style="list-style-type: none"> • Designed four in-class Kaggle competitions: Spoken Digit-Pair Recognition, Font Recognition, Modulation Prediction, Guilty or Not Guilty?.
PROFESSIONAL SERVICE	<p>Reviewer</p> <ul style="list-style-type: none"> • Conference on Neural Information Processing Systems (NeurIPS) 2021, 2022. • International Conference on Machine Learning (ICML) 2022. • International Conference on Learning Representations (ICLR) 2023, 2022. • Artificial Intelligence and Statistics (AISTATS) 2023. • International Symposium on Information Theory (ISIT) 2019-2022. • Information Theory Workshop (ITW) 2021, 2022. • Data Compression Conference (DCC) 2019, 2021, 2023.
TECHNICAL SKILLS	<ul style="list-style-type: none"> • Programming Languages - Python, C, C++. • Machine Learning Frameworks - Tensorflow, Keras, PyTorch.