

# Curriculum Vitae



SUTANU GAYEN

48 Jambol Place

Singapore – 119375

+65 82783790

<https://www.comp.nus.edu.sg/~sutanu/>

[sutanugayen@gmail.com](mailto:sutanugayen@gmail.com)



## RESEARCH INTERESTS

To get finite sample- and time-complexity bounds for statistical and causal inference problems. Another area of my research-interest is in streaming algorithms.

## PROFESSIONAL EXPERIENCE

### National University of Singapore

*Post-doctoral Research Fellow,*  
School of Computing,  
Advisor: Prof. Arnab Bhattacharyya.

*August 2019 – current*

## EDUCATION

### University of Nebraska-Lincoln

*Doctor of Philosophy (Computer Science),*  
Dissertation: *New Algorithms for Large Datasets and Distributions,*  
Advisor: Prof. Vinodchandran N. Variyam.

*August 2019*

### Indian Institute of Technology Kanpur

*Bachelor of Technology (Computer Science and Engineering).*

*June 2013*

## PUBLICATIONS

### Near-optimal learning of tree-structured distributions by Chow-Liu.

Arnab Bhattacharyya, Sutanu Gayen, Eric Price, and N. V. Vinodchandran.  
*In Proc. of ACM Symposium on Theory of Computing (STOC 2021).*

**Efficient distance approximation for structured high-dimensional distributions via learning.**

Arnab Bhattacharyya, Sutanu Gayen, Kuldeep S. Meel, and N. V. Vinodchandran.  
*In Proc. of Neural Information Processing Systems 2020 (NeurIPS 2020).*

**Learning and sampling of atomic interventions from observations.**

Arnab Bhattacharyya, Sutanu Gayen, Saravanan Kandasamy, Ashwin Maran, and N. V. Vinodchandran.

*In Proc. of International Conference on Machine Learning (ICML 2020).*

**Testing product distributions: A closer look, 2020.**

Arnab Bhattacharyya, Sutanu Gayen, Saravanan Kandasamy, and N. V. Vinodchandran.

*In Proc. of Algorithmic Learning Theory (ALT 2021).*

**Perfect zero knowledge: New upperbounds and relativized separations.**

Peter Dixon, Sutanu Gayen, A. Pavan, and N. V. Vinodchandran.

*In Proc. of Theory of Cryptography (TCC 2020).*

**KmerEstimate: A streaming algorithm for estimating k-mer counts with optimal space usage.**

Sairam Behera, Sutanu Gayen, Jitender S. Deogun, and N. V. Vinodchandran.

*In Proc. of the 2018 ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics (BCB 2018).*

**New algorithms for distributed sliding windows.**

Sutanu Gayen, and N. V. Vinodchandran.

*In Proc. of Scandinavian Symposium and Workshops on Algorithm Theory (SWAT 2018).*

**Algorithms for k-median clustering over distributed streams.**

Sutanu Gayen, and N. V. Vinodchandran.

*In Proc. of Computing and Combinatorics - 22nd International Conference (COCOON 2016).*

## ACADEMIC ACTIVITIES

- Reviewed papers for: ICML, NeurIPS, ALT, AAI, SODA, COCOON, STACS, Fundamenta Informaticae.
- Seminar talks:
  - Talks on ‘Near-optimal learning of tree-structured distributions by Chow-Liu.’
    - Computer Science seminar, Indian Institute of Technology Madras, May 2019.
    - Algorithms seminar, National University of Singapore, April 2019.
  - Talk on ‘Weighting-Based Estimators’ at the Causality Reading Group, NUS, July 2020.
  - Talks on ‘Efficient Distance Approximation between Structured High-dimensional Distributions via Learning’.
    - Computer Science seminar, Indian Statistical Institute, Kolkata, February 2020.
    - Computer Science seminar, Indian Institute of Technology, Kharagpur, February 2020.
    - Algorithms seminar, National University of Singapore, February 2019.

- Talk on ‘KmerEstimate: A streaming algorithm for estimating k-mer counts with optimal space usage.’ at a Computer Science seminar, Indian Institute of Technology, Kharagpur, July 2019.
- Talk on ‘Streaming Algorithms’ at an undergraduate seminar in Ramakrishna Mission Vidyamandira College, Belur, July 2019.
- Talk on ‘Testing discrete distributions’ at the UNL discrete math seminar, March 2018.
- Recitation (tutorial) for ‘CSCE 230 - Discrete Mathematics’, Fall 2014, UNL.

## OTHERS

- Workshops attended:
  - ‘Sublinear Algorithms Workshop’, Baltimore, January 2016.
  - ‘MIFODS Workshop’, MIT, June 2018.
  - ‘Robust High-Dimensional Statistics Workshop’, TTI Chicago, August 2018.
  - ‘Workshop on Boolean Functions’, ISI Kolkata, February 2020.
- Research visit: IISc Bangalore, hosted by Prof. Arnab Bhattacharyya, July 2018.
- TA certification: ‘Institute for Teaching Assistants - Workshop by UNL Graduate studies’, July- August 2014.
- Teaching assistant for courses at UNL and NUS:
  - Computer Science I (Intro. to Programming)
  - Introduction to Discrete Structures
  - Data Structures and Algorithms
  - Computer Organization Lab (with FPGA)
  - Automata, Computation and Formal Languages
  - Randomized Algorithms.
- Conference Talks:
  - Talk and poster on ‘Efficient distance approximation for structured high-dimensional distributions via learning’ at the NeurIPS 2020 conference.
  - Talk on ‘Testing product distributions: a closer look’ at the ALT 2021 conference.
  - Talk on ‘New algorithms for distributed sliding windows’ at the SWAT 2018 conference, Malmo University, Sweden, June 2018.
  - Talk on ‘Algorithms for k-median clustering over distributed streams’ at the COCOON 2016 conference, Ho Chi Minh city, Vietnam, August 2016.
- Programming languages: C, C++, Java, Python, Matlab, R.
- Languages: English, Bengali, Hindi.