

# V. Gurucharan

Chief Artificial Intelligence Officer

Collaborative Dynamics

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## Doctorate in Physics

Title Large-N Chern-Simons models in String and M-Theory  
University Dayalbagh Educational Institute (DEI)

## Research

- Garima Chhikara, Anurag Sharma, V Gurucharan, Kripabandhu Ghosh, Abhijnan Chakraborty, "LaMSUM: A Novel Framework for Extractive Summarization of User Generated Content using LLMs", June 2024
  - Submitted a research paper on Theory of Mind (ToM) in LLMs in a prestigious AI/ML conference in collaboration with researchers at Ernst & Young
  - Submitted a research paper on a novel approach to improve security in LLMs (with particular focus on law) in a prestigious AI/ML conference in collaboration with IIT Kanpur, IISER Kolkata
  - Submitted a research paper on reproducibility in LLMs in a prestigious AI/ML conference in collaboration with IIIT Ranchi, IISER Kolkata
  - V Gurucharan, Shiroman Prakash, "On the Spectrum of Higher Spin Operators in a Large Flavour Limit of Chern-Simons Theory coupled to Vector Fermions", Journal of High Energy Physics 2018 (02), 22 (Impact Factor: 5.0)
  - S Giombi, V Gurucharan, V Kirilin, S Prakash, E Skvortsov, "On the higher-spin spectrum in large N Chern-Simons vector models", Journal of High Energy Physics 2017 (1), 58 (Impact Factor: 5.0)
  - V Gurucharan, S Prakash, "Anomalous Dimensions in Non-Supersymmetric Bifundamental Chern-Simons Theories", Journal of High Energy Physics 2014 (09), 14 (Impact Factor: 5.0)
  - Reviewed research papers for prestigious conferences like NeurIPS and EMNLP
- Citations on Google Scholar: 149

## Programming languages & Software packages

Python, MATLAB, Mathematica, C++, HTML, CSS,  $\text{\LaTeX}$ , Git, Figma, Canva, Notion, CST Microwave Studio

## Talks & Conference Presentations

- Delivered an invited talk at Department of Physics, University of Tsukuba in July, 2018.
- Delivered an invited talk at Kalvi IPMU, University of Tokyo in June, 2018.
- Delivered an invited talk in International School on Quantum and Nano Computing Systems and Applications (QANSAS) organized by Dayalbagh Educational Institute in Nov, 2017.
- Delivered an invited talk at Department of Physics, University of California, San Diego on Anomalous dimensions in Chern-Simons theories in June, 2017.
- Presented a paper on Observer Effect and Uncertainty Principle in Quantum Systems in the conference, The Science of Consciousness, San Diego, 2017.
- Presented a paper on Overcoming Decoherence in Biological Systems using Topological Quantum Error Correction in Integrated East-West Forum of The Science of Consciousness, San Diego, 2017.
- Delivered an invited talk in International School on Quantum and Nano Computing Systems and Applications (QANSAS) on The Large-N Limit of Quantum Field Theories in Nov, 2016.
- Delivered an invited talk in National Strings Meeting (NSM) organized at Indian Institute of Science Education and Research, Mohali in Dec, 2015.

- Presented a poster entitled, “Design of tunable and low loss high pass filter using Electromagnetic Bandgap System on Ferrite Substrates” at the Joint International Conference on Applied Systems Research and XXXIII National Systems Conference, 2009.

## Other Publications

- V Gurucharan, “How Generative AI might transform Homeopathic practice”, Homeopathy for Everyone, June 2024.
- V Gurucharan, “A Chronic Case of Asthma in a 52 year old man”, Homeopathy for Everyone, 2024.
- V Gurucharan, “Acute kidney pain in a woman of 81”, Homeopathy for Everyone, Sept 2023.
- V Gurucharan, “Project: Agro-Homeopathy Based Organic Botanical Herbal Garden”, Homeopathy for Everyone, April 2023.

## Awards & Achievements

- Secured 99<sup>th</sup> percentile in highly competitive Union Public Service Commission (UPSC) Civil Services Preliminary examination twice (2022, 2020).
- Recipient of the esteemed Director's Medal for academic excellence in the M.Phil. (Physics) examination at Dayalbagh Educational Institute, Agra, in 2013.
- Cleared Council of Scientific and Industrial Research – National Eligibility Test (Lecturership) in Physics, 2013.
- Awarded the prestigious Director's Medal for securing the highest marks in B.Sc. Honours (Physics) examination, Dayalbagh Educational Institute, Agra, 2011.
- Recipient of the 2011 Undergraduate Research Award from the Association of Alumni of Dayalbagh Educational Institutions (AADEI), recognizing my dedication to research and academic excellence.
- Indian National Science Academy (INSA) Summer Research Fellow under supervision of Dr. Jatinder Vir Yakhmi at Bhabha Atomic Research Center (BARC), Mumbai, 2010.

## Leadership & administrative experience

- Initiated Srijanshala, a weekly enrichment camp based on Socratic method, and activity-based personalized learning for under-privileged children in Roorkee (2021).
- Founded Agro-Homeopathy based Organic Botanical Herbal Garden (AHOBHAG), the first herbal garden in India to employ the protocols of permaculture, agro-homeopathy and zero-tillage; lead a 15 member team, profitable since the 18<sup>th</sup> month of establishment (2020).
- Masterminded the highly successful annual day exhibition and celebration at DEI Information Center, Roorkee, which yielded an extraordinary surge of over 100% in annual sales and pre-placement offer for students from a MNC (2019-2023).
- Mentored and counselled graduate and under-graduate students at Dayalbagh Educational Institute, leading to improved research, placements and career growth (2014-2024).

## Teaching experience at DEI

- In Spring 2017, taught Discrete mathematics (Credits: 3.0) to Electrical engineering students.
- In Fall 2016, taught Numerical analysis (Credits: 3.0) to Civil engineering students.
- Instructor to B.Sc. and B.Tech. students in Physics laboratory (Fall 2014 to Spring 2016).

## Seminars, Workshops & Conferences conducted & organized

- Successfully organized the conference – ‘EduQuest: Navigating the Journey to Educational Excellence’ at DEI Information Center, Roorkee (2024).
- Spearheaded a workshop at DEI Information Center, Roorkee, delivering training on state-of-the-art organic farming techniques; empowered local farming community to adopt sustainable practices (2023).
- Successfully orchestrated a one-day workshop, on Homeopathy for laymen, hosted at DEI Information Center, Roorkee (2022).
- Coordinated organization of a Curriculum redesign workshop at Dept. of Physics and Computer Science, Dayalbagh Educational Institute (2014).