

Shri Lal Raghudev Ram Singh

Curriculum Vitae

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MC 6403, University of Waterloo, 200 University Avenue West Waterloo, ON, N2L 3G1

EDUCATION

- 2024–2028
(expected) **Ph.D. in Applied Mathematics**
Dept. of Applied Mathematics, University of Waterloo
Supervisor: Prof. Roberto Guglielmi
Research area: Stabilization of Linear and Nonlinear Partial Differential Equations (PDEs)
- 2024–2028
(expected) **Graduate Diploma in Theoretical Neuroscience**
Centre for Theoretical Neuroscience, University of Waterloo
- 2019–2024 **Integrated Masters in Applied Mathematics (BS+MS)**
Dept. of Mathematics, Indian Institute of Technology Roorkee (IIT-R)
Thesis: Boundary Control of a Class of Partial Differential Equations: Well-Posedness, Stabilization and Numerical Studies

RESEARCH INTERESTS

- **Mathematics:** Control and Dynamical Systems; Pure and Applied Analysis of PDEs.
- **Other:** Philosophy of Mind and Consciousness; Epistemology; Indian Philosophical Systems; Sanskrit Knowledge Systems; Bioinformatics.

PUBLICATIONS AND PREPRINTS

1. **Shri Lal Raghudev Ram Singh**, Manil T. Mohan. Boundary control of the generalized Korteweg–de Vries–Burgers–Huxley equation: well-posedness, stabilization, and numerical studies. *Mathematical Control and Related Fields* 15(3) (2025), 1205–1240.
2. **Shri Lal Raghudev Ram Singh**, Manil T. Mohan. Analysis and numerical study of boundary control of the generalized Burgers–Huxley equation. *arXiv preprint*, 2023.
3. **Shri Lal Raghudev Ram Singh**. Which consciousness can be artificialized? Local Percept–Perceiver Phenomenon for the existence of machine consciousness. *Artificial General Intelligence (AGI 2025)*, Lecture Notes in Computer Science 16058, Springer, Cham (2025).
4. D. Singh *et al.* (incl. **Shri Lal Raghudev Ram Singh**). Estimating gestational age using placental thickness and fetal weight. *Bioinformation* 21(2) (2025), 205–209.
5. **Shri Lal Raghudev Ram Singh**, Soham Chakrabarty. Local Percept–Perceiver Phenomenon for the study of consciousness in cognitive neuroscience and its Vedantic extension. *Proceedings of the International Conference on Mind, Body and Consciousness, IIT Mandi*, to appear (2025).

PROJECTS AND RESEARCH INTERNSHIPS

- May–Jul 2023 **Stability of Infinite-Dimensional Dynamical Systems Governed by an Operator that Generates an Analytic Semigroup**
Supervisor: Prof. Roberto Guglielmi, University of Waterloo

Aug–Nov 2023	Dynamical Scaling in Smoluchowski’s Coagulation Equations: Uniform Convergence Supervisor: Prof. Ankik K. Giri, IIT Roorkee
May–Aug 2022	Structure of Non-Autonomous Attractors for a Class of Diffusively Coupled ODEs Supervisor: Prof. Manil T. Mohan, IIT Roorkee
Jan–Apr 2022	On Global Stabilisation of Burgers’ Equation by Boundary Control Supervisor: Prof. Manil T. Mohan, IIT Roorkee
Jun–Aug 2022	Generating corpus of Sanskrit-English and Sanskrit-Hindi text to train machine for developing Sanskrit translation tool Supervisor: Prof. Jitin Singla, IIT Roorkee

TEACHING EXPERIENCE

Graduate Teaching Assistant, University of Waterloo

- AMATH 456/656: Calculus of Variations – with Prof. Roberto Guglielmi (Fall 2024, Fall 2025)
- MATH 237: Calculus 3 for Honours Mathematics – with Prof. Jerome Quintin (Fall 2024); with Prof. Ty Ghaswala (Winter 2025)
- AMATH 342: Computational Methods for Differential Equations – with Prof. Lilia Krivodonova (Winter 2025, Fall 2025)
- AMATH 731: Advanced ODE – with Prof. Henry Shum (Fall 2025)

Mathematics Teaching Assistant, Indian Institute of Technology Roorkee

- Assisted high school students in mathematics under the National Service Scheme (NSS).

CONFERENCE TALKS AND POSTER PRESENTATIONS

Aug 2025	Shri Lal Raghudev Ram Singh; Soham Chakrabarty Epistemic Locus of Perceptual Error: Pre-Judgmental and Post-Judgmental Accounts in Anyathākhyāti and Ātmakhyāti. <i>The Enigma of Perception (Pratyakṣa): Exploring the Science through the Lens of Indian Knowledge Systems</i> , ISS Delhi, IIT Delhi. (poster)
Aug 2025	Shri Lal Raghudev Ram Singh Which Consciousness Can Be Artificialized? Local Percept–Perceiver Phenomenon for the Existence of Machine Consciousness. <i>18th Annual AGI Conference (AGI-2025)</i> , Reykjavik, Iceland. (virtual talk)
Jul 2025	Soham Chakrabarty; Shri Lal Raghudev Ram Singh Consciousness and Qualia due to Proximity of the Conscious Agent and Primordial Matter: Toward an Axiomatic Proposition Based on Sāṃkhya. <i>31st Annual Science of Consciousness Conference (TSC)</i> , Barcelona. Hosted by the Center for Consciousness Studies, University of Arizona, The Festival of Consciousness, and Fundació Humanitas Internacional. (poster)
June 2025	Shri Lal Raghudev Ram Singh, Soham Chakrabarty Local Percept–Perceiver Phenomenon for the study of consciousness in cognitive neuroscience and its Vedantic extension. <i>International Conference on Mind, Body and Consciousness, IIT Mandi</i> . (virtual talk)

- Aug 2023 **Shri Lal Raghudev Ram Singh**
Examination of the Assimilation of Yajña within the Buddhist Tradition. *National Youth Conference on Indian Knowledge System, IIT Roorkee.*
- Aug 2023 **Soham Chakrabarty; Shri Lal Raghudev Ram Singh**
Caturāśrama: A Framework for Living a Purposeful and Fulfilled Life. *National Youth Conference on Indian Knowledge System, IIT Roorkee.* (poster)
- Aug 2023 **Soham Chakrabarty; Shri Lal Raghudev Ram Singh**
Revealing the True Nature of “Brahmacharya” to Prepare Modern Youth toward a Prosperous and Fulfilled Society. *National Youth Conference on Indian Knowledge System, IIT Roorkee.* (poster)
- Dec 2023 **Shri Lal Raghudev Ram Singh; Manil T. Mohan**
Analysis and Numerical Study of Boundary Control of the Generalized Burgers–Huxley Equation. *Mathematical Colloquium, National Mathematics Day, IIT Roorkee.* (poster)

SKILLS

- **Languages:** English, Hindi, Sanskrit.
- **Programming:** Python, C++, MATLAB.

AWARDS AND HONOURS

Academic

- Applied Mathematics Outstanding Teaching Assistant Award-2024-25
- International Doctoral Student Award (IDSA), University of Waterloo, 2024.
- Best Project Award (Master’s Dissertation), Dept. of Mathematics, IIT Roorkee, 2024.
- Best Poster Presentation Award (theme: “New Universal Sociological Models Based on Indic Emic Perspective”), National Youth Conference on Indian Knowledge Systems, 2023.
- Shyam and Pushp Garg Annual Excellence Award, IIT Roorkee, 2022.
- HoD’s Appreciation Awards, IIT Roorkee, 2021–2022.
- SOF–International Mathematics Olympiad (Final Round), Rank 7 (North Zone), Rank 81 (International), 2017.
- Silver Medal, Talent Search Examination (Mathematics), Harish-Chandra Research Institute, 2017.

Extracurricular

- First prize, Poetry (Sanskrit), 2023 and 2024, International Mother Language Day, IIT Roorkee.
- First position, Essay Writing (Sanskrit), 2024; Second position, Essay Writing (Hindi), 2022, International Mother Language Day, IIT Roorkee.
- First position, Transcreation Competition (Sanskrit), 2024; First position, Transcreation Competition (Hindi), 2022, International Mother Language Day, IIT Roorkee.

SERVICES AND OTHER WORK EXPERIENCES

- Nov 2022–Nov 2023 **Intern | IKS Division IIT-R, Govt. of India**
Conducted Indological research on primary sources; developed course materials, videos, and web resources on Aṣṭāṅga Yoga and Buddhist studies.

- May–Jul 2022 **Subject Matter Expert | Lampros Tech Labs Pvt Ltd**
Prepared high-quality solutions to mathematics questions up to the engineering level on Brainly and Chegg.
- Oct 2022–Jul 2023 **Secretary of Yoga Sports | IIT Roorkee**
Conducted yoga training sessions, represented the institute in yoga sports, and volunteered at related events.
- Nov 2022–Jul 2023 **Student Coordinator | Sanskrit Club, IIT Roorkee**
Led research and development; managed and organized events; and executed projects related to Sanskrit Knowledge Systems.
- Dec 2020–Jan 2021 **Intern | Sanskrit Club, IIT Roorkee**
Assisted Samskrita Bharati volunteers in preparing a book on the *Subhashitam Samskritam* course and compiled a database of global experts in Sanskrit and allied disciplines.

OTHER INTERESTS

- Composing poetry in Sanskrit, hybrid Sanskrit–Hindi, and Hindi
- Chanting and recitation of Sanskrit hymns and study of Sanskrit texts
- Translation of ancient dharmic texts (Sanskrit–Hindi–Tibetan–English)
- Painting
- Chess

REFERENCES

Available upon request.