

# Jishnu Parayil Shibu

+91 9385928610 | jishnu82003@gmail.com | Website | Github | LinkedIn

## PERSONAL PROFILE

I am a second-year Master's student in Mathematics at the Indian Statistical Institute, specializing in geometric analysis. My current Master's project is in geometric measure theory, and I have previously worked with Prof. Benjamin Andrews at the Australian National University on topics related to geometric flows and the calculus of variations. During my undergraduate studies, I pursued research internships in machine learning and robotics, which, while no longer my focus, helped me develop valuable research and problem-solving skills that are universally applicable.

## EDUCATION

### Indian Statistical Institute

*MSc. in Mathematics, Year 1 CGPA: 92.2/100*

Kolkata, India

*Jul. 2024 - May. 2026*

Relevant Coursework:

- Fourier Analysis, Functional Analysis, Differential Geometry I, Riemann Surfaces, Teichmuller Theory, Symplectic Geometry, Probability Theory, Measure Theory, Analysis on Manifolds, Topology I and II, Algebra I and II

### Sri Aurobindo International Centre of Education

*BSc. in Mathematics, Best Student Award*

Puducherry, India

*Dec. 2020 - Oct. 2023*

- Mathematics, Mathematical Statistics, Physics, Computer Science, English, French

## RESEARCH EXPERIENCE

### Master's Project (Sem. 3) in Geometric Measure Theory

Jul. 2025 - Present

*Under Prof. Partha Sarathi Chakraborty, Indian Statistical Institute*

- Studied topics in geometric measure theory from *Measure Theory and Fine Property of Functions* (Evans and Gariepy, 1992)
- Prepared a mid-semester report on "An Exposition of the Area Formula" (link)
- Prepared a end-semester report on "Co-Area Formula for BV Functions"
- Will extend this work next semester (sem. 4) by studying Simon's *Geometric Measure Theory*

### Reading Project with Prof. Benjamin Andrews

May. 2025 - Jul. 2025

*Future Research Talent Program, Australian National University*

- Studied topics in geometric flows from *Extrinsic Geometric Flows* (Andrews et al. 2020)
- Explored topics in the calculus of variations using *Variational Methods* (Michael Struwe 1990)

### Research Intern

Apr. 2023 - Dec. 2023

*Prof Min Xu's lab, Carnegie Mellon University*

remote

- Co-authored a research paper which introduces a novel video anomaly detection framework under a lab automation setting

### Machine Learning and Robotics Researcher

Feb. 2022 - Dec. 2023

*FG Intelligent Autonomous Systems Group, Technische Universität Darmstadt*

remote

- Contributed to the development of multiple projects which include computer vision, robotics and software development

## PUBLICATIONS

### Deep Video Anomaly Detection in Automated Laboratory Setting

*Jishnu Parayil Shibu, Vibhu Dalal, Min Xu, Ali Dabouei et. al. 2024*

[Link](#) (Accepted in journal 'Expert Systems with Applications Elsevier')

## ADDITIONAL COURSES

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### Student under Prof. Vikraman Balaji

Feb. 2023 - Nov. 2023

*Chennai Mathematical Institute*

- Explored various topics spanning from Abstract Algebra, Linear Algebra, and Analysis
- Identified and worked on potential gaps in knowledge, building a solid foundation for graduate level mathematics

## AWARDS & HONORS

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- Recipient of the **Future Research Talent (FRT) Award**, Australian National University. Awarded AUD 8,500 to support a 12-week research internship in geometric analysis under Prof. Ben Andrews: 2025
- Winner of the **Best Student Prize** when completing third and final year undergraduate degree: 2023
- 11 Time Winner of the **Prize for Academic Excellence**: 2013-2023
- Recipient of a **Double Promotion**, successfully completing Class 11 and Class 12 within a single academic year: 2019-2020

## WORK EXPERIENCE

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### Machine Learning Engineer

May. 2024 - Jul. 2024

*Neptune Technologies LLC, Naples, Florida*

remote

- Contributed to the development of machine-learning models for stock-market prediction and to the overall software pipeline.

## STANDARDISED TEST SCORES

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### International English Language Testing System (IELTS): 8.5/9

Oct. 2025

Listening (9), Reading (9), Writing (8), Speaking (8)

### Diplôme D'Études en Langue Française DELF B2: 91.5/100

Dec. 2023

Listening (23), Reading (20.5), Writing (23), Speaking (25)

### Graduate Record Examinations (GRE): 332/340

Oct. 2023

Quant (168), Verbal (164), AWA (4.5)

## EXTRA-CURRICULAR ACTIVITIES

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### Piano

Dec. 2015 – Present

Western classical

### Tabla

Dec. 2018 – Present

Learned compositions from various Gharanas

### Physical Education

Dec. 2009 – Oct 2023

Gymnastics, Athletics, Aquatic Sports, Games (Football, Basketball, Volleyball, Hockey)

## ACADEMIC REFERENCES

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**Prof. Ben Andrews**, Professor at Australian National University, Canberra, Australia, +61 2 6125 3458, Ben.Andrews@anu.edu.au

**Prof. Partha Sarathi Chakraborty**, Professor at Indian Statistical Institute, Kolkata, India, parthacsarathi.isi.smu@gmail.com

**Prof. Samik Basu**, Associate Professor at Indian Statistical Institute, Kolkata, India, samikbasu@isical.ac.in

**Shanti Ramanathan**, Teacher of Mathematics at Sri Aurobindo International Centre of Education, Puducherry, India, +91 9944611954, shanti.ramanathan@gmail.com

**Prof. Vikraman Balaji**, Distinguished Professor at Chennai Mathematical Institute, Chennai, India, +91 9884392556, vikramanbalaji@gmail.com

**Prof. Jan Peters**, Full Professor (W3) at Technische Universität Darmstadt, Germany, +49 61511625374, peters@ias.tu-darmstadt.de