

Jayabrata Basu

jayabratbasu@gmail.com | [linkedin.com](https://www.linkedin.com/in/jayabratbasu) | [github.com](https://github.com/jayabratbasu)

EDUCATION

SRM Institute of Science and Technology

*Bachelor of Technology in Computer Science Engineering,
Honors in Financial Technologies*

Chennai, Tamil Nadu

Aug. 2023 – May 2027

The Emerald Heights International School

*Secondary School Certificate
Higher Secondary Certificate*

Indore, Madhya Pradesh

Aug. 2009 – May 2023

EXPERIENCE

Undergraduate Research Intern

Aston Business School

June 2024 – July 2024

Birmingham, UK

- Performed data collection, collation and curation on Indian Creative and Cultural Industries
- Developed a web-scraping bot using Selenium and built a text summarization model
- Explored the heterogeneous and homogeneous ecosystems with a special emphasis on the Indian Film Industry

Research Associate

Schulich School of Business

Oct. 2024 – Present

Toronto, Canada

- Developed a responsive forum web application using React, TypeScript, and RESTful APIs to enable users to create, view, and interact with community posts.
- Implemented efficient data fetching, error handling, and markdown rendering for a seamless user experience.
- Designed reusable UI components and integrated pagination, user authentication, and tag-based filtering for enhanced functionality.

PROJECTS

HarvestForGood | Python, Django, React, PostgreSQL, Nextjs, TypeScript

Oct. 2024 – Present

- Built a React + TypeScript forum app with REST API integration, supporting markdown, pagination, and tag filtering. Leveraged custom hooks for efficient data fetching and state management.
- Built a Django REST Framework backend with JWT authentication, supporting CRUD operations, and public/guest posting for forums.
- Created a platform to connect researchers in the agricultural and global south conversational ecosystem
- Used PostgreSQL for scalable data storage, ensuring secure and efficient API endpoints for forum operations.

Black Hole Ray Tracing Simulation | Rust, WGPU, Rayon, Git

July 2025 – Present

- Built a real-time black hole visualizer using custom ray tracing and geodesic integration in Rust.
- Implemented multi-threaded rendering and scientific visualization of gravitational lensing.
- Designed modular code for camera, physics, and rendering components.
- Engineered core physics modules modeling black hole metrics, photon geodesics, numerical integrations.

VeridicalDB - An RDBMS in Go | Go, Make, Git

October 2025 – Present

- Engineered the core database engine in Go: implemented a SQL parser, query planner and execution pipeline and added relational features such as views, GROUP BY aggregation, JOINS, subqueries, CTEs, window functions, stored procedures, triggers, MVCC transactions, ACID compliance, columnar storage, JSON support, prepared statements (PREPARE / EXECUTE), CALL/SHOW commands, GRANT/REVOKE access controls and MERGE semantics.
- Delivered a reliable data storage and query service with a standard SQL interface so applications and analysts can store, retrieve and analyze structured data without adopting new tooling.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL (Postgres), JavaScript, TypeScript, HTML/CSS, Rust, Go

Frameworks: React, Node.js, Next.js, Material-UI, Django, Pytorch, Tensorflow

Developer Tools: Git, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse, Anaconda

Libraries: pandas, NumPy, Matplotlib

RESEARCH PUBLICATIONS

- Basu, J., Chintalapati, A., Pandiaraj, A., Azizan, A., Chakravarthy, V. D., & Selvaraju, P. (2025, September 26-27). *Chronic liver disease detection via weighted logits fusion of deep neural networks*. Paper presented at the International Conference on Intelligent Computing and Communication (ICICC 2025), CMR Technical Campus, Hyderabad, India.
- Singh, P., & Basu, J. (2025, January 15–18). *AI-driven approach to devise personalized alternative de-stressing routines*. Paper presented at the INDAM 2025 Annual Conference, Indian Institute of Foreign Trade (IIFT), Kolkata, India.
- Munjal, S., & Basu, J. (2024, September 1-2). *An exploratory study on the evolution of heterogeneous and homogeneous ecosystems: The case of Hindi and Telugu film ecosystems*. Paper presented at the AICAR 2024 Conference, Aston Business School, Birmingham, United Kingdom.

PROFESSIONAL EXPERIENCE

- Technical Team Member** Mar. 2024 – Oct. 2024
Futurix, SRMIST Chennai, India
- Contributed to technical initiatives and collaborative projects within the university innovation ecosystem.
 - Worked closely with cross-functional student teams on technology-driven problem solving.
- Treasurer** Nov. 2023 – Sept. 2024
IEEE Computer Society, SRMIST Chennai, India
- Managed club finances, budgeting, and fund allocation for technical events and activities.
 - Coordinated event logistics and ensured compliance with institutional financial guidelines.
- Open Source Contributor** Oct. 2023 – Nov. 2023
Hacktoberfest Remote
- Contributed code to open-source repositories during Hacktoberfest.
 - Collaborated with global developer communities using Git and GitHub workflows.
- Student Council Prefect & Club Head** Aug. 2009 – May 2023
The Emerald Heights International School Indore, India
- Served as Overall Prefect and led multiple school clubs and student initiatives.
 - Organized events, managed student teams, and represented the student body in leadership forums.

CO-CURRICULAR ACTIVITIES

- Community Connect Programme at Indore Cancer Foundation** June. 2025 – July. 2025
Indian Institute of Head and Neck Oncology
- Worked in documenting procedures, remedies and treatment methods for cancer patients.
 - Developed educational video content for hospital patients from underserved communities to improve comprehension of medical procedures and care instructions where verbal explanations were insufficient.
- Columbia University Global Symposium Programme** July 2021
Columbia University India
- Selected participant in a global symposium focused on cross-cultural dialogue and liberal arts education.
 - Engaged in Socratic discussions and critical analysis of classical and modern texts with international delegates.
 - Invited as one of two student delegates to deliver the closing address of the symposium.
- Barazza Leader** Oct. 2019
Round Square International Conference
- Moderated discussions among 25+ international participants on global issues including climate change, AI, and humanism.
 - Facilitated inclusive dialogue across diverse cultural and social backgrounds.
- Shodan (Black Belt) — Shotokan Karate** Oct. 2010 – Dec. 2015
World Funakoshi Shotokan Karate Organization
- Trained in traditional Shotokan Karate and attained the rank of Shodan (Black Belt).
 - Developed discipline, perseverance, and mental resilience through rigorous martial arts training.
 - Won 20 total medals across Kata and Kumite formats of the sport.

ACHIEVEMENTS

Certificate of Merit — Indian Public Schools Conference (IPSC), *2015, 2016*.

Smart Hub Award (Collaboration-Based) — Dr. B. K. Passi Community Development Project, Indore Sahodaya Schools Complex, *18 January 2020*.

Third Position — Inter-School Multi-Format Debate, Singapore International School, Mumbai, *4 September 2021*.

First Position — Creative Writing Competition, Mayo College Girls' School, Ajmer, *23–27 August 2021*.

Best Speaker (Extempore) — The Emerald Heights Knowledge Convergence ARC, *27–29 January 2022*.

Best Speaker (Semi-Final) — Inter-School Multi-Format Debate, Singapore International School, Mumbai, *2022*.

Third Position — Extempore Debate, Birla Vidya Mandir, Nainital, *28–30 May 2022*.