BIRESWAR SETT

+91 8240362486 | bireswarsett@bireswar.dev | LinkedIn | GitHub

SUMMARY

Computer Science and Data Science undergraduate with a strong foundation in software engineering, systems programming, operating-system development, GPU/CUDA computing, algorithms, and applied machine learning. Experienced in taking complex ideas from research and design through implementation, evaluation, and deployment across low-level systems, backend infrastructure, and AI-driven applications. A proactive problem-solver and collaborative team leader with strong communication, technical documentation, cross-functional coordination, and end-to-end ownership skills.

EDUCATION

Indian Institute of Technology, Madras Jul 2024 - Sep 2028
Bachelor of Science in Data Science and Applications

Siksha 'O' Anusandhan University Aug 2024 - Aug 2028
B.Tech in Computer Science and Engineering

PROJECTS

Akasha | Link **Aug 2026 - Sep 2026**

- Engineered an agentic vision-language platform for natural-language analysis of optical, SAR, and multi-temporal satellite imagery, integrating geospatial AI models, tool orchestration, and evidence-grounded response generation.
- Architected query understanding, task routing, specialist model invocation, and multimodal evidence synthesis; deployed model-serving infrastructure, backend APIs, authentication, cloud storage, and containerized services.
- Led a six-member cross-functional engineering team to deliver a deployment-ready solution for an ISRO problem statement across heterogeneous remote-sensing workflows.

K-centre Algorithm | Independent Research **Feb 2026 - Present**

- Developed a heuristic for discrete Euclidean 2D k-centre optimization, minimizing worst-case covering radius through K-means partitioning, cluster-wise discrete 1-centre initialization, and deterministic one-centre-swap local search.
- Evaluated 420 synthetic instances (120 points each, 12 distribution families) against exact optima and Gonzalez + local search; achieved 71.9% exact recovery (302/420) versus 65.0% (273/420), reducing mean approximation ratio from 1.031x to 1.017x and worst-case ratio from 1.414x to 1.301x.
- Conducting algorithmic research into optimal-centre configurations, adjacency constraints in 1D, and structural generalization to higher-dimensional spaces.

StarOS | Physics Simulation OS | Link **Oct 2025 - Present**

- Developing a bare-metal x86 operating system for real-time N-body physics simulation, with emphasis on low-level system architecture and kernel engineering.
- Implemented the x86 bootloader and processor transition from 16-bit real mode to 32-bit protected mode, establishing the startup sequence for a custom operating-system kernel.
- Designing modular kernel components for memory management, interrupt handling, hardware initialization, and custom scheduler integration for real-time simulation workloads.

Smart MCQ Solver | Link **Jul 2026 - Aug 2026**

- Developed a custom Transformer encoder for multiple-choice question answering, using shared embeddings and cosine-similarity-based ranking to score and retrieve candidate answers.
- Benchmarked against BERT and RoBERTa; performed model evaluation, hyperparameter tuning, and experiment tracking with Weights & Biases (W&B).
- Achieved approximately 0.75 Mean Average Precision (MAP) on the public Kaggle dataset.

TECHNICAL SKILLS

Languages: C++, C, Python, Java, C#, JavaScript, SQL (PostgreSQL, SQLite), HTML/CSS, x86 Assembly, Bash
Frameworks: Flask, Django
Developer Tools: Git, GitHub, Vim, VS Code, Visual Studio, Linux
Libraries: PyTorch, scikit-learn, Hugging Face Transformers, NumPy, Pandas, Matplotlib, CUDA