

# Riya Singh

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## SKILLS

- **Languages:** C++, Python, Java, C
- **Core Concepts:** Data Structures & Algorithms, Object-Oriented Programming (OOP)
- **Systems & Databases:** Linux, Shell Scripting, Git, MySQL, VS Code
- **Web Technologies:** HTML5, CSS3, REST APIs
- **Libraries / Frameworks:** Pandas, NumPy, Matplotlib, CustomTkinter
- **Soft Skills:** Communication, Problem-Solving, Decision-Making, Team Management

## PROJECTS

### Autonomous Drone Detection System | [GitHub](#) Jan'25 - Mar'25

- Built a real-time autonomous drone detection system using a **multimodal pipeline (YOLO, RetinaNet via Detectron2, and One-Class SVM)** to monitor and identify unauthorized drones in restricted airspace.
- Achieved **~92% detection accuracy** and **reduced false positives by ~38%** by combining fast object detection with secondary anomaly-based classification on cropped detection outputs.
- Enabled image, video, and live mobile camera (DroidCam) detection with <120 ms/frame latency, featuring real-time bounding boxes, audio alerts, automated result storage, and an ECG-style detection timeline.
- **Tech stack:** Python · YOLO · Detectron2 · OpenCV · Scikit-learn · PyQt5 · NumPy

### RTI-Aware Response Summarization System | [GitHub](#) Dec'25

- Developed an **end-to-end NLP system** evaluate and synthesize responses from PDFs and raw text, focusing on content grounding and legal clarity.
- Implemented RTI-aware semantic processing with sentence-level classification (informative, procedural, denial, evasive) and fact-anchor extraction to ensure context-aware summaries.
- Designed multi-level abstractive summarization (ultra-short, citizen-friendly, technical/legal) using the Gemini API, with classification decoupled from summarization to prevent generic outputs.
- **Tech stack:** Python · NLP · Streamlit · Gemini API · PDF Processings

### LexiVerse (High-Performance Browser-Based Search Engine) | [GitHub](#) Jun'25 - Jul'25

- Engineered a client-side search engine capable of querying 1M+ entries in milliseconds, emphasizing practical algorithm design, performance engineering, and real-world performance trade-offs.
- Re-engineered the backend by replacing a Suffix Trie with a flat array architecture, reducing time and space complexity and achieving near-zero load time.
- Implemented intelligent multi-word search, custom relevance scoring, and Hash Map-based frequency analysis to generate ranked results and real-time related-terms clouds.
- **Tech stack:** HTML5 · CSS3 · JSON · Array · Hash Map · Custom Sorting Algorithms · Client-Side Architecture

## PUBLICATIONS/PATENTS

### INVENTOR - Autonomous Drone Detection System with Multi-Modal Sensor Fusion and Early Intervention Strategies using YOLO, RetinaNet, and One-Class SVM Classifier

- **Application Number:** 202511035496
- **Published In:** IPR Journal No. 19/2025 Published Mar'25

## CERTIFICATES

- Master Generative AI & Generative AI tools (ChatGPT & more) - Infosys | [Certificate](#) Aug'25
- DSA with C++ Training Certification | [Certificate](#) Jul'25
- Java Programming - iamNeo | [Certificate](#) May'25
- Privacy and Security in Online Social Media – NPTEL (Elite Certificate) | [Certificate](#) Apr'25
- Data Structures and Algorithm - iamNeo | [Certificate](#) Dec'24
- Object Oriented Programming(C++) - iamNeo | [Certificate](#) Dec'24

## ACHIEVEMENTS

- Won Innovator's Choice at LPU 8th INNOTEK for technical innovation | [Certificate](#) Apr'25
- Developed optimized solutions for 150+ algorithmic problems on | [LeetCode](#)

## EDUCATION

- **Lovely Professional University** Phagwara, India  
*Bachelors of Technology | Computer Science and Engineering : CGPA : 8.55* Since Aug' 2023
- **Sacred Heart Sen. Sec. School** Ludhiana, Punjab, India  
*Intermediate: Percentage: 82.4%* Apr' 2022 – Mar' 2023
- **Sacred Heart Sen. Sec. School** Ludhiana, Punjab, India  
*Matriculation: Percentage: 95.4%* Apr' 2020 – Mar'2021