

# NITIN KUMAR

Operations Research Intern Candidate · Optimization · Data-Driven Systems

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## Professional Summary

B.Tech Computer Science student with strong foundations in Linear Programming, Integer Programming, and algorithmic problem solving. Experienced in translating data-driven problems into structured analytical models and optimizing system performance using constraint-based reasoning.

## Education

**B.Tech in Computer Science and Engineering** — Vellore Institute of Technology Sept 2022 – May 2026  
CGPA: **8.79/10**

## Core Competencies

**Optimization** Linear Programming, Integer Programming, Constraint Modeling, Objective Function Design  
**Algorithms** Greedy Methods, Graph Algorithms, Dynamic Programming, Complexity Analysis  
**Programming** Java, Python (basic), C++, SQL (MySQL), MongoDB  
**Data Analysis** Data validation, query optimization, trend analysis, benchmarking  
**Tools** Git/GitHub, Spring Boot, REST APIs, React.js

## Projects

**VShare – Production File Sharing Platform** — *React.js, Node.js, MongoDB* 2025

- Optimized backend resource allocation to maintain 99%+ uptime under concurrent usage.
- Reduced response time by 35% through structured performance analysis and indexing improvements.
- Applied constraint-based reasoning to reduce recurring system bottlenecks.

**VChat – Real-Time Messaging System** — *Spring Boot, WebSockets* 2025

- Analyzed concurrency bottlenecks and optimized throughput under peak traffic.
- Maintained 99.8% uptime through scalability testing and structured benchmarking.
- Reduced latency via optimization-driven session management improvements.

**Audio-to-Text Transcription Platform** — *React.js, Spring Boot, OpenAI API* 2025

- Improved processing efficiency by optimizing API request batching and backend workflows.
- Performed SQL-based data analysis to improve retention metrics.
- Achieved sub-50ms latency under 50+ concurrent sessions.

## Certifications & Achievements

- Oracle Java Foundation Associate — 94%.
- Solved 250+ Data Structures & Algorithms problems.
- Strong foundation in Discrete Mathematics, Probability, and Algorithm Design.

## Leadership & Activities

- Bronze Medalist – Inter-Regional Boxing Championship (KV Sangathan).
- Core Member – Pi Mathematics Club (2023–2025).