# Jaysurya Arya Ray

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## Education

**University of Florida, USA** | Aug 2025 – Present
MS in Computer Science
**Coursework:** Analysis Of Algorithm, Advanced Data Structures, Computer Networks

**Thadomal Shahani Engineering College, Mumbai University, India** | July 2017 – Jun 2021
BTech in Electronics And Tele Communication Engineering
**Coursework:** Structured Programming in C, Java, Digital System Design, Database Management
System, Computer Communication Networks, Microcontrollers, Microprocessors, Data
Compression and Encryption | GPA: 8.5/10.0

## Professional Experience

**Specialist Programmer – Strategic Technology Group**, Infosys Limited, India | Sep 2021 – Jul 2025
Infosys is a leading global technology services and consulting company based in India.

- Implemented a Redis caching layer that reduced API response times by **65%** and improved system throughput to handle **5k+ requests/sec**
- Designed and deployed a multithreaded load distribution algorithm in Python that optimized logistic route processing, cutting average computation time from **12s to 3s (75% faster)**
- Built a token-based authentication system in Java, integrating with a third-party validation API, enabling **secure access for 1k+ daily users** and reducing authentication failures by **40%**
- Built a database-driven framework that auto-generated new UI screens, reducing manual testing effort by **30+ hours/month** and cutting release times by **50%**
- Reduced the processing time of the system by **94%** by implementing an optimized algorithm for data calculation
- Mentored **4 junior developers**, reviewed code, and streamlined daily operations, improving task delivery speed

## Publications And Projects

**N-ary Treap: A Novel Data Structure for Balanced N-ary (Ongoing)**
DOI: 10.36227/techrxiv.172832680.09808189/v1

- Designed a variant of the Treap data structure in C to extend it from binary to N-ary trees, aiming to improve balance and efficiency for use in storage engines
- Coded the N-ary Treap in C and analyzed its performance in insertion, searching, and deletion operations
- Demonstrated that the N-ary Treap achieves logarithmic time complexity for these operations and is simpler to implement compared to traditional N-ary trees like B-trees
- Currently submitting the paper to IEEE Access for publication and the preprint version is available on TechRxiv

**Untox** | github.com/untox

- Programmed an application to address excessive social media usage by allowing users to track and reduce their screen time through friendly competition
- Constructed a Chrome extension in JavaScript to monitor website activity
- Contributed to designing and implementing a stats page with SolidJS to view personal usage data and time spent on each application, both daily and weekly
- Introducing new features such as app blocking, dedicated study sessions, and website blocking
- Achieved a 57% average reduction in social media time during closed alpha testing

## Technical Skills

**Programming Languages:** Java, Python, Rust, C, JavaScript, TypeScript, HTML, CSS, SQL
**Framework and Libraries:** Spring Boot, Django, ReactJS, SolidJS, Flutter
**Tools:** Git, Linux, Vim

## Extracurricular Activities

- Played a key role in the Infosys recruitment team, significantly contributing to project success through the acquisition of skilled talent **(2024)**
- Rated 4-star on CodeChef and Specialist on Codeforces, competitive programming platforms, **(Since 2021)**