# Balaram RV
## Software Developer Intern

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## Education

**Government College of Technology, Coimbatore - India**
Bachelor of Engineering in Computer Science and Engineering (2023-2027)

## Experience

**Intern - Tamil Nadu Engineering Admissions (TNEA)** April 2025 – Present
Government of Tamil Nadu.

- Architected and maintained a scalable web-based Seat Matrix Portal system, managing real-time data flow for engineering admissions across 500+ institutions in Tamil Nadu.

- Served as technical liaison between government agencies and educational institutions, implementing API integrations and resolving complex data synchronization issues.

- Developed automated data processing pipelines using Python, Selenium WebDriver, and Pandas for large-scale record validation and statistical analysis, reducing manual processing time by 80%.

## Projects

1. **Rank List Normalization – TNEA Internship**

   Python, Pandas

   - Engineered advanced data validation algorithms to impute missing rank entries through pattern recognition and suffix-based interpolation techniques.
   - Implemented complex multi-dimensional data normalization logic for rank columns with null values, incorporating community and quota-based classification systems with hierarchical suffix propagation.

2. **Browser Automation for Record Counting – TNEA Admin Portal**

   Selenium, WebDriverIO, Python,

   - Architected intelligent browser automation framework to systematically traverse application number ranges and aggregate statistical records across distributed systems.
   - Leveraged Selenium WebDriverIO for dynamic web scraping and DOM manipulation, extracting structured data from secure admin portals for quota-based analytics including 7.5%, Nativity and MBC classifications.
   - Enabled efficient data collection for statistical insights used in decision-making.

3. **Transaction Management**

   PHP, MySQL, HTML/CSS

   - Architected and deployed a secure full-stack web application with comprehensive financial transaction management capabilities, featuring robust MySQL database architecture with normalized schema design, ACID compliance, secure PHP backend APIs with input validation, SQL injection prevention, and session management to ensure data integrity and safeguard sensitive financial operations.

## Technical Skills

**Languages:** Python, Java, SQL, JavaScript

**Frameworks**: ReactJS, Node.js, MongoDB

**Libraries/Tools:** Pandas, Selenium, WebDriverIO, Stagehand

**Developer Tools:** Git, GitHub, VS Code, PyCharm, Postman