

# Istiqbal Aurangzeb

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## Technical Skills

**Frontend Development:** React.js, Next.js, TypeScript, JavaScript, HTML5, CSS3, Responsive Design, Component-Based Architecture

**State Management & Libraries:** Redux, Context API, Hooks, React Router, RESTful API Integration, Real-time Data Visualization

**Styling & UI:** Tailwind CSS, Bootstrap, CSS Modules, Recharts, Material Design Principles, Mobile-First Design

**Backend & APIs:** Node.js, Express.js, RESTful APIs, GraphQL, Microservices Architecture, API Design

**Testing & Quality:** Unit Testing, Integration Testing, End-to-End Testing, Test-Driven Development, Code Review

**Tools & Workflow:** Git, GitHub, Bitbucket, Jira, Agile/Scrum, CI/CD, GitHub Actions, SDLC Best Practices

**Cloud & Databases:** AWS (EC2, S3, Lambda, RDS), PostgreSQL, MySQL, MongoDB, Database Design

**Additional:** Python, Java, Docker, Web3.js, Ethers.js, Performance Optimization, Accessibility Standards

## Experience

**Research Software Engineer** | Clemson University, Clemson, SC | Feb 2024 – Present

- Architected and delivered React.js dashboards with Tailwind CSS, implementing responsive design patterns and component-based architecture; achieved sub-200ms real-time data visualization latency serving multiple concurrent users.
- Engineered frontend applications using React Hooks, Context API, and custom state management solutions; integrated RESTful APIs and GraphQL endpoints with robust error handling and loading states.
- Developed reusable component libraries following design system principles; implemented TypeScript for type safety and improved developer experience across 15+ components.
- Collaborated in Agile/Scrum environment using Jira for sprint planning and Git/GitHub for version control; conducted code reviews ensuring adherence to coding standards and best practices.
- Deployed CI/CD pipelines (GitHub Actions) for automated testing and deployment; integrated AWS services (EC2, S3) for scalable application hosting. Co-authored 2 peer-reviewed publications.

**Freelance Software Developer** | Upwork | March 2025 – Present

- Architected full-stack baseball analytics platform with Next.js, TypeScript, PostgreSQL, and Firebase Auth; integrated Google Gemini AI analyzing 690K+ MLB Statcast records for personalized coaching insights.
- Engineered ETL pipeline processing Baseball Savant API with chunked ingestion, retry logic, and rate limiting; built 15+ RESTful endpoints with JWT verification and Row-Level Security policies.
- Developed responsive Tailwind CSS UI with Chart.js visualizations and mobile-optimized controls; implemented AI coaching system leveraging context-aware prompts using 6 PostgreSQL RPC functions for z-score percentile rankings and Euclidean distance matching.

## Projects

**AI-Driven Adversarial Threat Detection for Autonomous Vehicles** | Large Multimodal Models (GPT, LLaVA, Claude)

- Developed a security pipeline to detect diffusion-based adversarial attacks on traffic signs, achieving 85% accuracy—a 45% improvement over legacy models.
- Quantized and deployed on ZED Box and Raspberry Pi with minimal latency (5 s/image), ensuring real-time viability.
- Integrated stereo-camera inputs with the CARLA simulator for lane marking detection under Automated Lane Centering, preventing mis-steering under adversarial patches.

**Interactive Browser-Based Game Application** | Vanilla JavaScript, HTML5, CSS3, Node.js

- Created 2,800+ line browser-based application with vanilla JavaScript implementing MVC architecture; developed responsive grid system (3 breakpoints) using CSS Grid and Flexbox.
- Built Node.js/Express backend with 8 RESTful endpoints; implemented PostgreSQL database integration with connection pooling; deployed to production on Render with automated backup workflows.

**E-Commerce Database Management System** | Java, MySQL, AWS RDS

- Engineered full-stack Java application with MySQL database on AWS RDS handling 100,000+ product variations; designed relational schema (12+ tables) with proper normalization and indexing.
- Implemented stored procedures and triggers for automated inventory management; created admin dashboard for real-time sales reporting and analytics.

## Publications

- Co-authored 2 peer-reviewed journal articles on software systems for automation and data processing, published in Automation in Construction (Impact Factor: 11.5).

## Education

**Master of Science in Computer Science** | Clemson University | GPA: 3.63/4.0 | Dec 2025

**Bachelor of Technology in Computer Science and Engineering** | Sri Venkateswara University | May 2023