

Amadou Seck

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Education

Metropolitan State University of Denver | Denver, CO **Bachelor of Science in Computer Science** | Expected Dec 2026

Technical Skills

Languages: JavaScript (ES6+), TypeScript, HTML5, CSS3

Frontend: React.js, Next.js, Tailwind CSS

Backend & Database: MongoDB, Mongoose, Clerk Auth

Tools: Git, VS Code, TanStack Query, Postman

Projects

Infrasight | Next.js 15, TypeScript, MongoDB Timeseries, Pusher, Redis, Clerk

- **Real-Time IoT Dashboard:** Architected a building sensor monitoring system using Pusher WebSockets for live updates across 500+ devices tracking temperature, humidity, CO2, power, and occupancy.
- **Timeseries Database Design:** Implemented MongoDB timeseries collections with 90-day TTL and optimized aggregation pipelines for efficient high-volume sensor data queries.
- **Analytics & ML Features:** Built 5 analytics endpoints including anomaly detection with ML-based scoring, predictive maintenance forecasting, and cross-device temperature correlation.
- **Production Infrastructure:** Integrated Upstash Redis rate limiting, Sentry error tracking, and Prometheus metrics export for enterprise-grade observability.
- **Testing & Quality:** Achieved 80%+ test coverage using Jest unit/integration tests and Playwright E2E tests with CI enforcement via Codecov.

LodgeFlow (Admin Dashboard) | Next.js 15, TypeScript, MongoDB, Clerk, Recharts

- **Role-Based Access Control:** Implemented Clerk authentication with permissions (admin, staff, customer) protecting dashboard routes and API endpoints.
- **Full-Stack Architecture:** Built a property management system with cabin inventory, booking workflows, customer profiles, and business analytics visualization.
- **API Development:** Designed RESTful endpoints with consistent response formats, pagination, input validation, and comprehensive error handling.

- **Data Integrity:** Created MongoDB schemas with compound indexes and a `findOverlapping()` static method to prevent double bookings at the database level.

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- **Booking Engine:** Developed a customer-facing reservation system with real-time availability checking and date conflict prevention
- **Server-Side Validation:** Enforced strict validation for date ranges, guest capacity, and pricing rules to ensure data integrity across the booking flow.
- **Transactional Emails:** Integrated Resend for automated booking confirmation emails with dynamic content templating.
- **Optimized Data Fetching:** Implemented SWR for caching with TanStack Query mutations for responsive UI updates.

EXPERIENCE

Web Developer Intern | Ray of Hope | Denver, CO | August 2024 – December 2024

- **UX Improvement:** Enhanced user experience by designing intuitive landing pages, resulting in improved site navigation.
- **Performance Optimization:** Optimized image loading times by implementing the **Intersection Observer API** and lazy loading techniques to reduce initial payload size.
- **Component Development:** Developed a library of reusable **React.js components** to ensure design consistency and speed up feature deployment.