

Akash Rana

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Education

Master of Science in Computer Science Case Western Reserve University

May 2024 - Dec 2025
Cleveland, Ohio, USA

Course Work: Analysis of Algorithms, Databases, High Performance and Distributed Computing, Computer Perception, Probabilistic Graphical Models, Machine learning, Natural Language Processing, Data Mining, etc.

Bachelor of Engineering in Computer Science & Engineering Chandigarh University

July 2018 - June 2022
Mohali, Punjab, India

Course Work: Algorithms, Data Structures, Operating Systems, Databases, Object-Oriented Programming (OOPS), Artificial Intelligence, Theory of Computation, Computer Organization and Architecture (COA), Compiler Design.

Work Experience

Web Developer (MERN Stack)

June 2022 – Sep 2023

Go Sky Aviation Pvt. Ltd.

Delhi, India

- Developed and maintained three e-commerce websites, transitioning from a Frontend Developer role (React.js) to Full-Stack Developer.
- Collaborated closely with UI/UX teams to enhance customer experience, resulting in a 30% increase in user engagement.
- Built and integrated RESTful APIs using Node.js and Express, improving load times by 20% and backend response efficiency by 25%.
- Managed MongoDB databases for scalable data handling of over 10,000 product entries, ensuring robust and efficient data retrieval.

Academic Projects

Furniture Village: E-commerce Website (ReactJS, Node.js, ExpressJS, MongoDB)

[\[GitHub Link\]](#)

- Developed a full-stack e-commerce platform for furniture sales with a dynamic and responsive frontend built using ReactJS.
- Designed RESTful APIs and handled business logic through ExpressJS and Node.js, ensuring scalable server-side functionality.
- Integrated MongoDB as a NoSQL database to manage users, products, and order data with efficient schema design.
- Focused on enhancing user experience with features like category filtering, secure authentication, and shopping cart persistence.

Smart Home Energy Dashboard (React, Node.js, MongoDB, Chart.js, IoT Simulation)

[\[GitHub Link\]](#)

- Developed a full-stack dashboard to monitor and visualize real-time energy consumption across simulated smart home appliances.
- Built interactive UI components in React with Chart.js for dynamic graphs showing device-level usage, trends, and alerts.
- Created RESTful APIs using Node.js and Express to serve IoT-like sensor data stored and managed in MongoDB.
- Implemented automated notifications for abnormal energy spikes and simulated device control endpoints for smart automation.

E-Commerce Website (HTML, CSS, PHP, MySQL)

[\[GitHub Link\]](#)

- Successfully integrated PHP and MySQL to enable dynamic content generation and efficient backend data management.
- Designed a clean, user-friendly interface using HTML and CSS, improving navigation and overall user experience.
- Implemented essential e-commerce features including product listings, user registration, and a functional shopping cart.
- Ensured stable performance and smooth user interactions by optimizing core components and maintaining backend reliability.

Skills

Frontend Development: ReactJS, JavaScript (ES6+), HTML5, CSS3, Bootstrap, Responsive Design

Backend Development: ExpressJS, PHP, RESTful APIs, Server-side Logic

Databases: MongoDB, MySQL, Schema Design, Query Optimization

Programming Languages: C++, C, Python, Arduino

Tools & Practices: Git, GitHub, CI/CD, Unit Testing

Achievements & Certifications

Publication: Advanced Smart Home Architectures: Enhancing Efficiency, Reliability, and Integration.

This research paper proposes advanced architectures for smart homes, emphasizing efficiency, reliability, energy conservation, reduced complexity, cost-effectiveness, and seamless integration of manual and smart devices. By transforming traditional electrical wiring, the proposed design significantly reduces wiring consumption. (Publication in Process)

- Qualified Graduate Aptitude Test Engineering (GATE) - CS/IT with 91.07 percentile. [ScoreCard](#) 2023
- Completed certification on Building Modern Python Applications on AWS by Coursera. [Certificate](#) 2021
- Completed certification on Data Science and Math Skills from Duke University. [Certificate](#) 2021
- Completed certification on Internet of Things organized by Indian Institute of Technology, Kharagpur. [Scorecard](#) 2019