Tanuj Katyal

Linkedin: linkedin.com/in/tanujkatyal
Github: github.com/TanujKatyal

Email: tanujkatyal123@gmail.com
Mobile: +91-9987828520

EDUCATION

- **Vellore Institute of Technology** — Vellore, India
  Bachelor of Technology - Computer Science Engineering; CGPA: 8.91 — Sep 2022 – Present
  Relevant Courses: *Object Oriented Programming, Data Structures and Algorithms, Design and Analysis of Algorithms, Computer Architecture and Organization, Operating Systems, Computer Networks, Compiler Design, Database Systems, AWS Solutions Architect*

SKILLS SUMMARY

- **Languages**: Python, C, C++, Java, HTML, CSS, JavaScript, SQL
- **Frameworks and Databases**: Node, Express, React, Socket.io, Frappe, LangChain, MySQL, MongoDB, SQLplus
- **Tools**: Git/GitHub, Postman, Arduino IDE, Docker, Wireshark
- **Platforms**: AWS, Arduino, Proxmox, ERPNext

EXPERIENCE

- **Brihaspathi Technologies** — Hyderabad, India
  Software Developer (Intern) — May 2025 – July 2025
  - **Proxmox Virtualization**: Deployed Proxmox VE on a physical server with 6 KVM VMs and 2 LXC containers, improving hardware utilization by 35%.
  - **ERPNext Deployment**: Set up the full ERPNext stack (Frappe, MariaDB, Redis) on a dedicated VM inside Proxmox, reducing configuration time by 50%.
  - **Gemini Chatbot Integration**: Integrated a Gemini LLM-based chatbot using an API key, LangChain, and custom REST APIs, optimizing queries across 90+ tables and processing 100+ queries daily.
  - **Monitoring and Logging**: Engineered performance monitoring with average response under 300 ms; tested 10 custom API endpoints.

- **Basil Drugs & Pharmaceuticals** — Mumbai, India
  Web Developer (Intern) — June 2024 – July 2024
  - **Web Deployment**: Built and deployed web applications using Node and React, increasing traffic by 25%.
  - **SEO and Performance**: Improved server-side rendering and metadata, boosting load speed by 30% and SEO by 20%.
  - **Real-Time Communication**: Set up live communication portal using WebSockets/Sockets.io.
  - **Security and Speed**: Reduced response times by 35% with SSL/TLS and smart caching.

PROJECTS

- **Secure Scalable Collaborative Code Editor** — May 2025 – July 2025
  - Web-based code editor for real-time collaboration across 200+ virtual rooms with up to 50 users each (10,000+ sessions). Configured ECDH for private room encryption, AES for data, TLS/SSL for secure connections.
  - Provisioned with Docker on AWS Elastic Beanstalk, EC2 Auto Scaling, ALB, ACM TLS, RDS, S3, achieving 99.99% uptime. Technologies: React, Node.js, Express, Socket.io, Docker, AWS.

- **Custom C-like Language Compiler with Embedded Database** — Feb 2025 – May 2025
  - Custom compiler for a C-like language supporting arithmetic operations, variable declarations, if-else conditionals, loops, and print statements. Implemented lexical, syntax, and semantic analysis using Lex and Bison. Built a scoped symbol table to manage multiple data types with error handling.
  - Extended functionality to 5 SQL commands: CREATE, DROP, INSERT, SELECT, WHERE for embedded database. Enabled intermediate code and code generation techniques. Validated with 20+ test programs and queries. Technologies: C, Lex, Bison.

- **Traveling Salesman Problem – Parallelized Genetic Algorithm** — Nov 2024 – Dec 2024
  - Genetic Algorithm based approach to the Traveling Salesman Problem, comparing serial and parallel executions. Two parallel modes - Migrating: up to 20% enhanced results and Isolated: up to 65% reduction in execution time.
  - Benchmarked and visualized performance improvements on 20–100 city datasets using Matplotlib. Technologies: Python, Genetic Algorithm, Multiprocessing, Matplotlib

RESEARCH

- **Intrusion Detection and Mitigation Framework** — Aug 2024 – July 2025
  - Spearheaded the creation of a multi-layered DDoS mitigation framework utilizing Bi-LSTM and GRU deep learning models achieving a 98% detection accuracy rate on encrypted traffic, preventing major outages.
  - Integrated SDN/NFV for mitigation at 10+ Gbps throughput with SCADA/ICS compatibility. Technologies: Python, ML/DL, SDN.

EXTRACURRICULAR ACTIVITY

- **Technical Head, ISGF**: Coordinated faculty guest lecture on smart grids with 100+ students attendance.
- **Campus Cryptic Hunt**: Organized Cicada 3301-inspired puzzle for 300+ students under IEEECS.
- **Finalist, Code4Change Hackathon**: Top 5 of 100+ teams; blockchain carbon credit trading platform with smart contracts and eco-project crowdfunding (CSED).

CERTIFICATIONS

Microsoft Azure AI-900, The Web Developer Bootcamp 2024, Introduction to MongoDB