PRANJAL MITRA

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SUMMARY

Computer Science undergraduate specializing in Cyber-Physical Systems with a strong focus on backend engineering, cloud infrastructure, and AI-driven solutions. Experienced in building production-ready applications using React, Node.js, MongoDB, MySQL, Docker, and AWS (Lambda, S3, DynamoDB, EC2). Developed and deployed systems ranging from blockchain-based booking platforms to GenAI-powered chatbots and automation tools. Led national hackathon teams, contributing to IoT-based monitoring frameworks, full-stack web platforms, and cybersecurity challenges. Passionate about solving complex problems, optimizing performance, and integrating AI into scalable, secure architectures.

EDUCATION

B.Tech, Computer Science Engineering spl. Cyber Physical Systems Engineering   Graduating July 2027
Vellore Institute of Technology, Chennai   8.66 CGPA

Relevant coursework: Data Structures and Algorithms, Cloud Computing,Operating Systems,Computer Networks,Probability and Statistics,Design and Analysis of Algorithms,Software Engineering

TECHNICAL SKILLS

Data Analysis and Statistics: R , Matlab
Development: ReactJs,NextJs,Typesript,MongoDB,Postgresql,MySQL
Programming: Java, Python, C,C++, Javascript
Cloud and Devops: AWS, Docker, Linux
Cyber Security: Nmap, Maltego, Wireshark, Burpsuite , Openssh, OSINT, Binwalk

PROFESSIONAL EXPERIENCE

Microsoft Innovations Club, VITC, Chennai, TN: Cybersecurity Lead   June 2025 – Present
  • Conducted 5+ workshops/CTFs (OSINT, Web Security); built toolkit used by 50+ students

Wiremetrics Solutions, Remote: AI Intern   August 2025 - September 2025
  • Developed and fine-tuned a GenAI-based medical chatbot leveraging the Gemma 3n LLM, improving domain-specific response accuracy by 10 %.

ACADEMIC PROJECTS

Agentic Cold Emailing System   Spring 2025 – Present
Automated lead outreach using LLM agents for email generation, scheduling, and tracking.
  • Generated 200+ personalized emails/hour via Python + Gemini API
  • Managed 5,000+ leads in SQL Lite with industry and region filters
  • Achieved 97% delivery rate with SMTP automation and response tagging (92% accuracy)

Medical VLM Chatbot (Gemma 3n LLM)   Fall 2025
Fine-tuned Gemma 3n for medical Q&A with visual input support.
  • Trained on 20,000+ medical Q&A pairs, boosting accuracy from 78% to 91%
  • Enabled X-ray/MRI analysis with 85% precision
  • Deployed FastAPI backend handling 150+ concurrent requests at 1.2s median latency

Patient Health Deterioration Prediction   Fall 2025
Built a predictive model to identify patients at risk of health decline within 90 days.
  • Achieved 94% AUC in predicting deterioration using an XGBoost model on electronic health records (EHR)
  • Engineered 50+ features from a dataset of 10,000+ patient records, including vitals and lab results
  • Implemented SHAP analysis to provide clinicians with interpretable, risk-factor-based predictions