

# Hemant Kumar

Portfolio: [hemantk.me](https://hemantk.me)

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## EDUCATION

- Indian Institute of Technology (IIT), Patna** Patna, India
  - Bachelor of Technology - Computer Science and Engineering; **GPA: 9.09** Aug. 2023 - May 2027 (Expected)
  - Courses: Algorithms, Artificial Intelligence, Discrete Math, Computer Architecture, Entrepreneurship, Database
- LBS Sr. Sec School, Kota** Kota, India
  - Senior School Certificate Examination (CBSE), **Percentage: 96%** 2023
- Kendriya Vidyalaya, Nasirabad** Ajmer, India
  - Secondary School Examination (CBSE), **Percentage: 98.4%** 2021

## EXPERIENCE

- Revspot.ai** Remote
  - Full Stack Development Intern Aug. 2024 - Oct. 2024
    - Developed a **profile fit model** to predict lead conversion from a raw, highly skewed dataset by implementing oversampling techniques; achieved **97% accuracy** and **80% ROC AUC**.
    - Built a **responsive, user-centric website**, significantly enhancing user engagement and improving lead conversion rates.
    - Implemented **JWT-based authentication** using **Auth0**, enabling secure, multi-organization access across **4 separate client environments**.

## PROJECTS

- SoulScript - AI Mental Health Therapist (GenAI)** [Deployed Link](#) — [Source Code](#)  
AI mental health therapist that talks to you in realtime and helps you know about yourself. Apr. 2025 - Jun. 2025
  - Tools & technologies:** Gemini, Google Agent Development Kit, Typescript, Flask
  - Developed a real-time conversational **AI avatar** with **<1s audio latency**, enabling seamless voice interactions using Gemini's **native audio APIs**.
  - Engineered a multi-agent system using **Google ADK** and Python Flask backend to dynamically generate therapeutic responses and track session progress across 1000+ concurrent users.
  - Implemented automated persona report generation via **Retrieval-Augmented Generation (RAG)** on psychological literature, enhancing therapy personalization for over 90% of users.
- Fantasy Sports Score Prediction (ML)** [Source Code](#)  
Cricket player performance prediction created for InterIIT Tech Meet 2024 Nov. 2024 - Dec. 2024
  - Tools & technologies:** PyTorch, Google Cloud Platform, NextJS, Three.js,
  - Trained an ANN-based fantasy score prediction model on **ball-by-ball data containing 18,402 matches** from cricsheet.
  - Used **Three.js** to create a compelling animated website for selecting teams, match type, and match date for prediction.
  - Integrated Google Cloud services for **translation** and **text-to-speech** in **15 Indian languages**.
- Two-Pass RISC Assembler and Emulator (C++)** [Source Code](#)  
Under the guidance of Prof. Jimson Mathew Nov. 2024
  - Designed and implemented a two-pass assembler to convert RISC assembly code into machine code, using C++ for performance and control.
  - First Pass: Constructed symbol table and performed syntax/semantic error detection to ensure accurate label resolution and code structure.
  - Second Pass: Translated validated assembly instructions into machine code, incorporating symbol resolution from the first pass.
  - Developed an emulator to execute the generated machine code, displaying step-by-step register and memory state changes for debugging and analysis.

- **OneIITP - Official Cross Platform App of IIT Patna**  
*Gained more than 2000 active users within a week*
    - **Tools & technologies:** React Native, Firebase
    - Built a unified mobile app for IIT Patna students, addressing a wide range of daily campus needs through a clean, intuitive interface, supported for **both Android and IOS**.
    - Reduced attendance proxy by 96% through a custom-built, **encrypted QR-based anti-proxy system** that **changes QR every second** to prevent sharing.(Attendance System Link)
    - **Key Features:** Live bus schedules, blogs, class timetable, attendance tracker, institute marketplace, events, quick links, emergency contacts, food outlets, and an admin mode.
  - **Ark Wallet (Bitcoin)**  
*A Bitcoin wallet supporting off-chain and on-chain payments via the Ark network*
    - **Tools & technologies:** Rust, Ark Protocol, Nigiri (Bitcoin regtest environment)
    - Built a feature-rich wallet that enables users to **create/manage Ark wallets**, generate **on-chain/off-chain addresses**, and **send/receive funds** seamlessly across the Ark network.
    - Implemented **faucet** functionality to request Bitcoin on regtest from **Nigiri**, streamlining the local development and testing process.
    - Added settlement capability to move funds between **off-chain and on-chain wallets**, simulating real-world Bitcoin transaction flow and ensuring protocol compliance.
    - Demonstrated secure handling of digital assets within a **regtest environment**, supporting robust integration testing and iteration.
  - **Alloc8.in**  
*The official hostel allocation website of IIT Patna*
    - **Tools & technologies used:** Node.js, React.js, TailwindCSS, MongoDB, Redis, AWS (Lightsail), Nginx
    - Developed a highly intuitive, **movie seat-style interface** for hostel room selection, streamlining the allocation process for over **6,000 students**.
    - Engineered a robust backend with **Redis locking mechanisms** to handle concurrency issues during peak traffic, ensuring data consistency and preventing race conditions.
    - Deployed the backend on **AWS Lightsail VPS** with **Nginx** for reliable and scalable hosting under real-time load conditions.

[Play Store](#) — [App Store](#)  
*Aug. 2024 - Jan., 2025*

[Source Code](#)  
*Apr 2025*

[alloc8.in](#) — [Source Code](#)  
*June 2024*
- SKILLS SUMMARY
- **Languages:** Python, C, C++, Rust, JavaScript, Typescript, SQL
  - **Frameworks:** Scikit-learn, TensorFlow, PyTorch, Flask, NodeJS
  - **Tools:** Docker, Git, MongoDB, MySQL
  - **Platforms:** Linux, Web, Android, Google Cloud Platform
  - **Soft Skills:** Teamwork, Leadership, Communication, Analytical Solving
- ACHIEVEMENTS
- **Rank 24 in NK Securities Research Hackathon** for implied volatility prediction among 2095 entrants. *2025*
  - **Selected among Top 100 projects** for Google Solutions Challenge 2025. *2025*
  - **ICPC Regionalist:** Secured an All-India Rank of 26 at the ICPC Chennai Regionals 2024. *2024*
  - **Rated Expert (max. rating 1621) on Codeforces (XGB)** *2024*
  - **Secured 2nd Position in Codepeak 2023** a prestigious one-month-long open-source event. *2023*
  - **Secured 2552 rank (top 1%)** in JEE Advanced exam among 250,000+ students *2023*
  - **Secured 3216 rank (99.72%ile)** in JEE Mains exam among 1.1 Million students. *2023*
- POSITION OF RESPONSIBILITY
- **Overall Lead,** Google Developer Groups on Campus, IIT Patna *Aug. 2024 – Present*
  - **Sub-Coordinator,** NJACK – Programming Club, IIT Patna *Jun. 2024 – Dec. 2024*