

Tirth Patel

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Education

Royal Melbourne Institute of Technology

February 2022 - July 2025

Bachelor of Computer Science

- Relevant Coursework: Data structures and algorithms, Object oriented programming, Cloud Computing, Software Testing, Operating systems, Networks

Experience

Intern Software Engineer

Jul 2024 - Mar 2025

Equoia | JavaScript, React, Python, AWS

- Created a website from scratch using React, Tailwind CSS and MUI.
- Developed a storage system using SQLite for time-series data from IOT devices to increase efficiency.
- Helped debug core software on IOT devices to increase stability
- Proposed an AWS architecture model for a centralised storage system using DynamoDB, AWS Lambdas and AWS API Gateway, extensively documenting cost saving measures like aggregate and drop after certain time period

Projects

AES Implementation in Rust | Rust

[Github](#)

- Implementing the AES block cipher with a focus on AES-GCM to deepen understanding of modern authenticated encryption schemes
 - Following NIST specifications for correctness
 - Used only the Rust standard library to gain low-level insight into AES internals without relying on external cryptographic crates
- Currently in the process of validating against official NIST test vectors

Password Manager | Electron, Next.js, Tailwind CSS

[Github](#)

- Building a minimalist, cross-platform password manager using Nextron (Electron + Next.js)
- Structured the vault to support scalable entry search by applying vault-level encryption to common fields (e.g., usernames, entry titles), enabling partial search functionality without exposing passwords in plaintext
- Secured passwords with per-entry encryption using unique Data Encryption Keys (DEKs), which are themselves protected via a Master Key derived using PBKDF2
- Followed modern cryptographic practices, including AES-GCM for authenticated encryption and secure key wrapping mechanisms

Technical Skills

Languages: JavaScript, Typescript, Python, Rust, C++, SQL, HTML/CSS

Frameworks: React.js, Next.js, Electron,

Developer Tools: Git, VS Code, Xcode, Jira, AWS

Databases: MySQL, MongoDB, DynamoDB

Other

Interests: Coding, gaming, speed typing, badminton

Referrals: Available On Request