Ashwin **Rajesh**

SOFTWARE ENGINEER · DEVELOPER · RESEARCH ASSISTANT

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Skills

Languages	**Rust**, **TypeScript**, C++, Python, Java, Bash
Operating Systems	**Linux (Debian, NixOS, Arch Linux)**, Windows
Programs	**Vim**, **Git**, **Docker**, **Nginx**, **React**, **GraphQL**, **MongoDB**, **Postgres**, **NextJS**, **Nix**, **Jira**, **Latex**, Excel, Word
Spoken Languages	**English**, Hindi, Telugu

Experience

Full-Stack Software Developer   **Ultimo, NSW**

GECKO.RENT   Nov. 2022 - July 2023

Responsibilities
- Develop website functionality to enable users to lend and borrow party equipment efficiently and intuitively.
- Work on Search Engine Optimisation (SEO), increase the visibility and outreach of Gecko.

Achievements
- Designed and implemented fundamental website features such as inventory tracking, product addons & review systems.
- Enabled scheduled automated emails by developing a cronjob based system for the backend.
- Worked on deceasing load times of the main storefront pages using server side rendering and generating static paths, retaining more customers on the site.

Research Assistant   **Ultimo, NSW**

UTS   Mar. 2024 - Present

Responsibilities
- Configure and develop infrastructure to enable research teams to work more effectively and be able to conduct real-time demonstrations.
- Set up a system to allow the research team to work remotely.
- Develop a real-time web application to demonstrate a novel method of water sensing.

Achievements
- Set up and configured a workstation machine with linux for professional data analytics usage, with xRDP and secure access control mechanisms.
- Developed a full-stack web application to demonstrate water sensing results, including detailed charts such as contour diagrams that are updated in real time.
- Currently working on a project involving Software Defined Radios (SDRs).

Casual Academic   **Ultimo, NSW**

UTS   Feb. 2025 - Present

Responsibilities
- Mentor undergraduate students about fundamental embedded programming concepts.
- Assist and guide students on their practical embedded projects, providing technical and design practice counsel.
- Evaluate students' performance and grade them based on their technical knowledge and practical proficiency.

Extra Curricular

UTS Programming Society Executive   ⭘ **ProgSoc**

EVENTS MANAGER   Oct. 2024 - Present

- Planned and scheduled events for ProgSoc by booking rooms, organising catering, setting up AV systems, etc.
- Hosted Workshops to provide students with practical knowledge on industry tools such as Docker, React, Vim, Linux and more.
- Helped organise a programming competition, which involved writing competition questions that challenge participants' programming skills.
- Contributed to community projects, including the club's voting system and FuzzJudge (custom competition judging software).

Projects

Zyenyo

Typing Test Discord Bot • Aug. 2022 - Present
- Created a bot that allows users to test their typing speed within discord, with functionality such as leaderboards, charts and averages.
- Used MongoDB aggregation functions to perform statistical analysis on collected typing data.
- Helped create a performance rating algorithm, by associating user's WPM, accuracy & prompt difficulty.
- Currently active - used by multiple users in large public discord servers.
- Utilized Docker to deploy a full stack website along with the bot on a VPS.

Neopresence
 VanillaViking/neopresence

Neovim Rich Presence Integration Plugin • Oct. 2024
- Developed a plugin for the Neovim text editor that enables session statistics to be viewed within Discord chat application.
- Manages Inter process communication using RPC.
- Efficient asynchronous architecture of program, using Rust's tokio async runtime and message passing to avoid race conditions.
- Customised diffing algorithm based on Myer's diff algorithm implemented to provide efficient progress statistics.

Water Sensing Dashboard

Real Time Results Dashboard for a Radio-based Water Sensing Research Project • Jun. 2025
- Used React & tailscale to build a UI layout including chaarts, histograms and interactive maps.
- Responsive to all screen sizes, including mobile and tablet screens.
- Actix Rust backend chosen for speed and memory efficiency.
- MongoDB used to archive data from field towers.
- Established an MQTT broker to mediate data between esp32 and field server machine.
- Used Nix as well as Docker to create a reproducible build system.

Polybar Contributions
 polybar/polybar

Popular Linux Status Bar • Aug 2022
- Fixed a bug that caused the entire status bar to crash in a certain circumstance.
- Contributed a spacing customisation feature.
- Examined low-level Xorg library documentation to fix an issue with display manager settings for "struts", which was reported to cause serious bugs.

Gromit-MPX Contributions
 bk138/gromit-mpx

On-Screen Annotation Tool • Sep. 2023
- Added a feature that enables the software to generate custom strokes from command line input.
- Added functionality to save the on-screen notes to a PNG file.
- The draw-line command was approved and deployed in the 1.5.0 release.

Research Project - Low Cost AI Sun Tracking

Researcher/Developer • Feb. 2025
- Produced an AI model that can run on an esp32 MCU, with considerably cheaper setup costs compared to recent literature.
- Used Quantization methods to achieve a performant computer vision model.
- Drastically lower power draw compared to other methods of Sun Tracking.

Education

University of Technology Sydney
Ultimo, NSW

B.E in Software Engineering with Diploma in Professional Practice • Feb. 2021 - Dec. 2025
- Recipient of **Best Capstone Poster Award 2025**.
- Recipient of **Dean's List 2024**.
- Recognised as an iSupporter Volunteer, by mentoring offshore students about Australian learning culture.
- Distinction Average (78 WAM).