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KYI PHYU (KRISTAL) SIN

SOFTWARE ENGINEER

SUMMARY

Adaptable software engineer with strong foundations in **algorithms**, **cloud infrastructure**, and **data systems**, applying **modern engineering practices** to build **reliable**, **high impact tools** across multiple domains.

EDUCATION

Bachelor of Computer Science — University of Queensland — July 2023 | Brisbane, QLD

Relevant Coursework: Introduction t**o Software Engineering, Computer Systems Principles & Programming, Algorithms & Data Structures, Artificial Intelligence, Cloud Computing, Web/Mobile Programming,** Fundamentals of **Data Science, Information Systems**

RELEVANT EXPERIENCE

Graduate Software Engineer — BHP — Feb 2024 | Brisbane,QLD

Two-year rotational graduate program, transitioning through **multiple technical teams** every **6** months.
Partnered with **cross-functional teams** in an **Agile** environment, driving **delivery** with ***Jira*** and ***Confluence***.

- **Data & Digital: People Domain** — Feb 2024 - Aug 2024
  Developed and **deployed** a **Random Forest-based ML model** into an existing attendance tracking system to predict and flag roster-attendance mismatches, **improving shift reliability** and **reducing manual discrepancies by ~40% across mine sites**.
- **Cyber Engineering** — Aug 2024 - Feb 2025
  Implemented a new analytics feature for the internal phishing incident tracker, **automating calculation of resolution times** and **surfacing triage insights** via a **dashboard,** and **reducing average investigation time by ~30%.**
- **OFT BOME Engineering: BHP GenAI Agents Hub** — Feb 2025 - Aug 2025
  Authored comprehensive **technical documentation** and onboarding guides detailing **codebase architecture**, ***Git*** **workflows**, and **infrastructure** (***Terraform***), which **accelerated developer ramp-up** and **reduced onboarding friction**.
  Engineered and **deployed** a **GenAI internal** ***Streamlit*** **web app** on ***AWS*** leveraging ***Bedrock*** **embeddings** and ***OpenSearch*** **vector search** to **enable dynamic document ingestion** and **improve semantic retrieval accuracy** for **automated customer insights**.
- **Data & Digital: Mining Domain** — Aug 2025 - Present
  Building a scalable **data synchronization service** within ***BHP's Haul Tune platform*** to integrate **real-time haul-track telemetry** with **Short Range Forecast data**, focusing on high-throughput **ETL pipelines**.
  Designing validation and reconciliation logic to align **real-time machine data** with **forecast plans** across mine sites, **improving data reliability** and ensuring alignment for business-critical decision-making.

TECHNICAL SKILLS

- **Languages >>** Python, Java, C, C#, JavaScript, TypeScript, HTML, CSS, SQL
- **Frameworks & Libraries >>** React, React Native, Next.js, TailwindCSS, Framer Motion
- **Cloud & Infrastructure >>** AWS (Bedrock, DynamoDB, Lambda, OpenSearch Serverless, S3, SageMaker), Docker, Terraform
- **Developer Tools & Environments >>** GitHub, GitLab, Linux/Unix, Jira, Confluence
- **Databases >>** MySQL, PostgresSQL

PROJECTS

- **Kristal's Portfolio | Next.js, React >>** **Developed** an **interactive, terminal-themed web portfolio** featuring **boot animations**, **command-based navigation**, an **IDE-style project explorer**, and an **in-terminal AI chat session** that answers user queries using my professional data; **deployed** on ***Vercel*** for fast, scalable hosting.
- **Colorithm | Python, Streamlit >>** **Designed** a **color palette generator** that fuses **K-Means image analysis** with a **deep learning color-harmony model**; **deployed** on ***Hugging Face*** Spaces for free, accessible hosting.
- **Hexplore | Python >>** **Implemented** a **simulated hex-grid agent** that integrates **deterministic pathfinding, stochastic planning** and **model-free reinforcement learning**, enabling robust navigation as the environment shifts from fully deterministic to probabilistic and completely unknown dynamics.
- **Patchwork | C >>** **Engineered** a **CLI subword-matching game** to find longest real dictionary words, supported by a ***Unix*** **multi-process testing framework** that uses **process spawning** and **inter-process communication** to safely isolate runs, capture output, and validate correctness with high reliability.