# Guanhao Hui

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## Education

**UNSW Sydney | Master of Information Technology, Artificial Intelligence (in progress)** 2025.09–2027.08
**University of Macau | Bachelor of Science in Computer Science** 2021.08–2025.07

## Product Skills and Technology Stack

- **Requirements and Interaction Design:** Break down user scenarios, business processes and exceptions; use Axure and XMind for requirements and prototypes, producing PRDs, flowcharts and acceptance criteria. Experience with job-linked workflows, filterable tables and narrow-screen interactions.
- **AI / Agent Product Design:** Understand technical limits through LangGraph, Tool Calling, structured output and semantic retrieval; design task orchestration, evidence thresholds, human handoff and failure fallbacks.
- **Data Analysis and Evaluation:** Use Python and SQL to validate data and define product metrics; assess performance and token cost through offline cases, baseline comparisons and Recall@10 / nDCG@10.
- **Technical Collaboration and Delivery:** Use FastAPI, Playwright, SQLite, REST APIs and SSE, with React / Next.js and Vue.js experience; align APIs, authorisation and test criteria for integration and acceptance. Familiar with Hadoop and Spark.

## Internship Experience

**Liaoning Provincial Key Laboratory of Optical Information and Simulation | Research Assistant Intern** 2024.05–2024.08

- **Requirements Breakdown:** Joined flight-training and optical-information simulation requirements reviews; translated training goals into scenes, assets and interaction logic, configured and validated in Unreal Engine 5.
- **Delivery Coordination:** Aligned solution, development and testing milestones with senior engineers; tracked issues and staged deliverables from requirements through validation.
- **Quality Analysis:** Used Profiler to inspect frame rate, memory and load time, identify stuttering and stability issues, and support runtime experience improvements.

## Projects

**JobScout | AI Job Research, Matching and Tracking Agent** github.com/Funkierry/JobScout 2026.06–2026.08

**Context and Goal:** Built a target-job-centred AI job-search workspace to address fragmented company and role information, unfocused interview preparation and site-by-site application checks, connecting job discovery, matching, interview preparation and progress tracking.

**Personal Project | My Role:** Extended DeerFlow; **independently owned requirements breakdown and Agent workflow design**, web interactions and full-stack integration, and established functional acceptance and offline evaluation processes.

- **Product Planning and Job Linking:** Designed a continuous "match jobs → save target → prepare for interviews → link application" journey, **linking reports, sessions and applications through the target job**. Integrated **Feishu Base read-only OAuth authorisation**; defined candidate-record IDs, limited JD retention and ownership checks; restored sessions on job switching and distinguished saved targets from submitted applications.
- **Agent Workflows and Reports:** Split research into **parallel company, role and interview-experience tasks**, consolidating role requirements, resume gaps, at least 8 technical/role questions and 4 behavioural questions. **Designed fallback paths** for missing JDs, absent resumes and failed page retrieval; required sources for company-specific questions and labelled unsupported questions as inferred or general.
- **Tracking and Evidence Rules:** Read users' own application lists or details on employer career sites; verified each role, application date and original status before mapping to **12 standard stages**. Preserved vague status wording and kept unsupported results unknown or pending verification. Established an initial baseline, then **recorded status changes and check history** for manual review, without confusing posting dates with application dates.
- **Interaction Delivery and Exceptions:** Designed and implemented **resume upload/parsing, streamed reports and in-session follow-ups**, plus Markdown/PDF export. Tracking included stage counts/filters, compact tables, status details, individual/batch refresh and **live SSE progress**. Users handled login/CAPTCHA; low-confidence results required confirmation, with manual correction, terminal-stage skipping and narrow-screen cards.
- **Evaluation and Results:** Created 24 skill-trigger cases, 30 workflow-behaviour cases and 12 status snapshots covering tool paths, source evidence, fallbacks and output contracts; **92 local tracking tests passed** in 2026.09. In one like-for-like test of the original research pipeline's complete delivery, **token use fell from approximately 427,000 to 293,000, a 31% reduction**.

**Multimodal Intelligent Product Search and Recommendation Platform** github.com/Funkierry/Multimodal-Product-Search-and-Recommendation 2024.10–2025.04

**Context and Goal:** Built a desktop search and recommendation platform for 199,000 products to address inaccurate natural-language search, repetitive exploratory recommendations and fragmented reviews, integrating discovery, filtering, comparison and purchase decisions into one client journey.

**Personal Project | My Role:** Owned **requirements analysis, search/recommendation design and interaction design**; implemented core client features, retrieval/recommendation integration and offline evaluation.

- **Scenarios and Experience Design:** Separated goal-directed natural-language search from open-ended exploration, proposing **semantic retrieval + layered recommendations + review insights**. Designed and built popular-product browsing, filters/sorting, details/external links, Top 3 similar products and cross-category recommendations. Showing alternatives and review pros/cons together on detail pages created a **discover → filter → compare → decide** journey.
- **Recommendations and Technical Trade-offs:** Used **dual OpenCLIP + Faiss indexes** for text-to-image retrieval and image/title-fused similar-product recall. Applied normalised co-purchase scores for sparse interactions, falling back to highly rated same-category products. Moved spaCy + VADER review summaries to **offline generation with direct client reads**, integrating search, recommendations and reviews while reducing startup NLP computation dependencies.
- **Data Validation and Evaluation:** Validated index counts, dimensions, hashes and catalogue row order for 198,910 products to prevent product/vector mismatches. Deterministic leave-one-out evaluation with 133 simulated users achieved **co-purchase Recall@10 of 0.481**, above the popularity baseline of 0.459 and equal to the same-category baseline. Moving full row-order audits offline while retaining essential runtime checks cut **manifest validation time from 15.82 s to 8.14 s** on the same machine.

## Awards and Leadership

**Dean's Honour List 2023/2024**
Faculty of Science and Technology, University of Macau | 2024.02

**Whole Person Development Scholarship, Third Prize**
Ma Man Kei and Lo Pak Sam College, University of Macau | 2022.02

**Secretary-General, Inter-College Activity Committee (CICA) | 2024.07**
Meeting minutes and records; coordinated inter-college events and budget approvals.

**Vice President, Ma Man Kei and Lo Pak Sam College House Association, University of Macau (UMMLC HA) | 2023.08–2024.06**
Coordinated major events, cross-team collaboration and event publicity.

**Other Skills |** Music production and digital visual creation: proficient in FL Studio, Photoshop and Illustrator, with foundational visual and content communication skills.