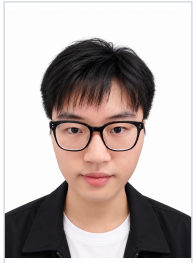
Chengjin LI 李承锦

AI Algorithms | Agent Systems | Medical Imaging & Research Software | Full-stack Development

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EDUCATION

2025 – Present
University of Electronic Science and Technology of China (UESTC)
Master's student, Information and Communication Engineering; **overall rank: 9/318**.
Research: medical imaging, deep learning and agents.

2021 – 2025
University of Electronic Science and Technology of China (UESTC)
B.Eng. in Communication Engineering; GPA: **3.84/4.0**, **top 10%**.

PROJECT EXPERIENCE

01 StudyHub

study-hub.cn Code

Next.js · FastAPI · MySQL · Redis · MCP · vLLM · Docker

UESTC's first campus study-resource platform: resource sharing, RAG retrieval, an incremental Wiki, agent Q&A and moderation.

- **Ownership:** Conceived the platform; led architecture, core frontend/backend, access control, resource management and deployment. Used Codex/Claude Code for development/testing; coordinated contributors and reviewed/merged PRs.
- **Operations:** Managed outreach, the user community and feedback-driven iterations: **approximately 400 users and 2,000 resource downloads**.
- **AI-assisted operations:** Designed a **Monitor–Muse–Codex** loop: Monitor detects anomalies and emails alerts; Muse diagnoses alerts/logs and routes issues to Codex for fixes, tests and recovery verification.
- **RAG retrieval:** Built structure-aware chunking and Parent–Child indexing with BM25, BGE-M3, RRF fusion and **Qwen3-Reranker-0.6B**. On SciFact, improved **Hit@5 from 87.5% to 96.9%** and **MRR@5 from 0.828 to 0.932** over the RRF baseline.
- **Incremental Wiki:** Applied **Map–Reduce** to entity/concept extraction and cross-document aggregation; added **chunk-level extraction caches, source provenance and invalidated-knowledge retraction** for incremental updates.
- **Agent harness:** Built on **Qwen3.5-9B**, selecting **ReAct or Plan-and-Execute** by task complexity. Added tool/citation validation and correction, insufficient-evidence handling, context compression and execution budgets. Versus basic ReAct, the full harness raised the **required-source citation-coverage pass rate from 12.5% to 91.7%**, with **zero context-budget terminations**.
- **Post-training:** Ran **LoRA-based SFT/GRPO** and controlled tool-calling evaluations; **tool-call success rose from 87.5% to 93.8%**.
- **Multimodal moderation:** Integrated **Qwen3Guard-Gen-0.6B / ShieldGemma 2-4B** for text, images and OCR. Used candidate-class probabilities and a **0.85 confidence threshold** for automatic approval/rejection or human review of uncertain/disputed cases; achieved **73.4% automatic-handling coverage** in offline XSTest text-moderation evaluation.

02 DDSurfer

doi:10.1002/advs.76596 Code

Python · PyTorch · SimpleITK · Trimesh · FreeSurfer

A **weakly supervised cortical-surface reconstruction model for diffusion MRI (dMRI)**, addressing label scarcity. **First-author paper published in Advanced Science** (2026; **CAS Zone 1, TOP; IF 14.1**).

- **Ownership:** Led architecture, losses and training strategy; independently implemented core algorithms and paper experiments: preprocessing, training, ablations and cross-dataset evaluation, with Codex-assisted development.
- **Weak supervision:** Used conventional algorithms to generate pseudo-labels; designed a **Unidirectional Boundary Loss** and geometric regularization to mitigate label noise and boundary shifts.
- **Architecture:** Combined **Dual-Stream** anisotropy/diffusivity branches, **Cross-SE** attention, multiscale features and large-kernel attention. Predicted **time-varying velocity fields (TVF)** for diffeomorphic template-mesh deformation and continuous cortical-surface reconstruction.
- **Ablations:** Tested single-stream, no Cross-SE, no large-kernel attention and single-channel variants; reduced rCoV by **12.4%/28.3%** for the two surface types versus the single-stream baseline.
- **Postprocessing:** Built FreeSurfer-compatible mesh checks, thickness/curvature/area calculation, parcellation and standard-space mapping. Batch mapping/cache reuse cut runtime from **13.68 s to 3.23 s (approximately 76%)**.
- **Validation:** Versus initial pseudo-labels, volumetric similarity improved from **0.944/0.923 to 0.985/0.980**; measurement variability fell **25.5%/31.7%**. On **four external datasets (203 subjects)**, regional **rCoV/RSD significantly outperformed two comparison methods ($p < 0.05$)**.

PROJECT EXPERIENCE

03 dMRI-Agent

github.com/azurezhangwei/MRI_Agent

Python · LangChain · FastAPI · 3D Slicer

An agent system for natural-language-driven medical image analysis in 3D Slicer: multi-step data processing, tool execution and result analysis. (Manuscript submitted.)

- **Contribution:** Contributed to agent architecture, external-software integration and experiments; refined protocols and interaction flows with Codex-assisted development.
- **Planning:** Encapsulated expert procedures as **structured protocols**; used **Agent Skills-inspired progressive disclosure** for on-demand steps/tool specifications, explicit I/O, checkpoints and error handling. An adaptive **Planner–Executor** separates global planning from staged execution and adjusts step granularity to task complexity.
- **Tool use & recovery:** Implemented controlled tool calls, module discovery, parameter/permission checks and external-tool scheduling; combined phase-level QC, recovery and **JSONL traces** for failure diagnosis and provenance.
- **Benchmark:** Reproduced manual outputs across **five workflow categories with hidden failures**. Against Claude Code, Codex and Qwen Code **under the same model configuration**: **77.8%–88.5% fewer tokens**, **46.2%–73.9% fewer LLM requests**, **49.7%–56.3% fewer tool calls**; **5/5 categories completed**, with comparable or higher tool-call success.

04 SlicerDSpace

github.com/ChengjinLii/SlicerDSpace

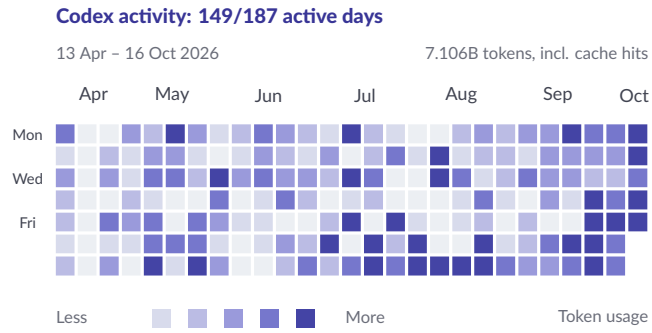
Python · PyTorch · Qt · 3D Slicer

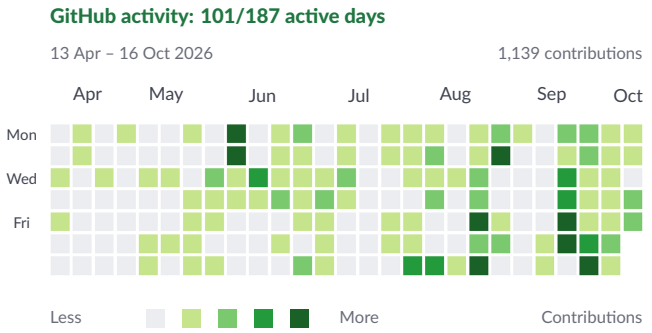
An **open-source 3D Slicer extension for dMRI**, combining algorithms and reproducible GUI/CLI workflows. (Manuscript submitted.)

- **Ownership:** Led architecture, Qt GUI/core development, algorithm integration, orchestration, tests and deployment; used Codex for development/testing.
- **Modular integration:** Wrapped PyTorch models and third-party tools as **reusable modules** with shared I/O, configuration and result management; added dependency/model-resource checks and on-demand execution.
- **Orchestration:** Built configuration-driven, dependency-aware pipelines with a shared GUI/CLI backend; added task states, caching, resumption and traceable logs to reduce recomputation and manual intervention.
- **Performance:** Used NumPy/VTK vectorization, chunked batching and label grouping for streamline processing/regional statistics. Representative tests: **50,000-streamline filtering/geometric copying, 6.32 s to 0.11 s**; **regional-statistics export, 5.55 s to 0.55 s**, with output-equivalence checks.

TECHNICAL SKILLS

AI-assisted coding	Codex, Claude Code, AntiGravity, Hermes, Muse.
Model development	PyTorch > Transformers > vLLM.
Engineering	Linux > Docker > Git.





HONORS & ACADEMIC ACTIVITIES

Academic & Innovation Honors

2026 HONOR ICT – Academic Star
One of only two recipients in the cohort.
2026 Graduate Academic Scholarship
First Class, UESTC.
2025 Graduate Academic Scholarship
First Class, UESTC.
2025 Graduation Innovation Award
Undergraduate Graduation Innovation Award, UESTC.
2024 National-level Project Approval
Undergraduate Innovation and Entrepreneurship Training Program.
2021–2025 Outstanding Student Scholarship
UESTC; **four consecutive academic years**.

Conferences & Competitions

2026 Graduate Electronics Design Contest
First Prize, Southwest Division, AI track; StudyHub-Agent (Class A competition).
2025 ISMRM 2025
Research accepted for **Oral presentation**.
2025 OHBM 2025
Research accepted for **Poster presentation**.
2025 MICCAI PDCADxFoundation Challenge
5th place in both classification and segmentation tracks.
2025 ISICDM 2025
Research accepted for **Poster presentation**.
2025 Huawei Cup Mathematical Modeling
22nd China Graduate Mathematical Contest in Modeling: **National Third Prize; team leader** (Class A competition).