Ranran HU

SUMMARY

Graduate student in Computer Science at UMass Dartmouth with hands-on experience in applying **Large Language Models (LLMs)** and building intelligent agent systems using **OpenAI API**, **LangChain**, and **Streamlit**.

Background includes 3+ years in **medical device R&D** as a systems engineer, with strong capabilities in algorithm design, data-driven decision making, and system integration.

Authorized to work in the U.S. under an **EAD (Employment Authorization Document)**.

EDUCATION

Master of Science in Computer Science, University of Massachusetts Dartmouth, USA — Now (in progress)

Master of Science, Biomechanics, University of Lorraine, Metz, France
GPA: 3.45, Language of instruction: English — Sep. 2019 – June 2020

Master of Engineering, Mechanical Engineering, University of Lorraine, Metz, France
GPA: 3.075, Language of instruction: French/English — Sep. 2018 – June 2020

Bachelor, Industrial Engineering, Nanjing Agricultural University, Nanjing, China
GPA: 3.08 — Sep. 2014 – June 2018

RELEVANT PROJECTS

Auto-GPT Email Agent – github.com/RanranHu168/auto-gpt-email-agent

- Built a CLI-based AI agent to autonomously process email-like input using GPT-4.
- Simulated multi-step planning via prompt engineering and agentic decision making.
- Handled input parsing, memory context, and logical reasoning loop.

LLM-Powered Document Q&A System – [In Progress]

- Developing a LangChain-based chatbot capable of querying user-uploaded documents.
- Implemented chunking, embedding with OpenAI, and context retrieval via FAISS.
- Target use case: personal resume and product brochure understanding.

Multilingual AI Copywriting Tool – [In Progress]

- Streamlit web app enabling users to generate product copy in English, Chinese, and French.
- Integrated OpenAI GPT model with prompt templates and user tone customization.
- Suited for e-commerce product description and branding content.

RELEVANT EXPERIENCE

System Engineer, Shanghai Hong Chuang Medical Technology Company, China — Dec. 2020 – Jan.2024

- Designed and patented a gas bubble detection algorithm using only pressure sensors; converted signal input into risk alerts in thrombectomy devices.
- Collected real-time data and built signal-triggered algorithms for embedded applications.
- Led UI page design and proposed a PID-controlled temperature management system for ECMO devices.

Intern engineer, Devices for the disabled Center, France — Jan. 2020 – July. 2020

- Redesigned sensor layout of a smart cane to improve force collection accuracy on limb joints.
- Verified acquisition system using mechanics theory and ANSYS simulation.
- Contributed to algorithm and structural validation of real-use medical aid tools.

Research assistant, University of Lorraine, France — Jan. 2019 – Dec. 2019

- Designed a microcontroller-based skin burn assessment device with pressure sensors.
- Processed resistance data and visualized severity index using Excel macros.

RELEVANT COURSES

Graduate: Data Structure & Fund Algorithms, Artificial Intelligence, Data Visualization, Obj-Oriented Program with Java, Fund of Computer Systems, Mechanical design, Finite element, Microstructure and mechanical properties

Undergraduate: Advanced Mathematics**,** C programming Language, Applied Statistics, Operations research, Applied statistics, Probability Theory and Mathematical Analysis, Principle of Database, Linear Algebra, Principles of economics, Physics

SKILLS/ ABILITIES

- Programming: Python, C, MATLAB
- AI Tools: OpenAI API, LangChain, Streamlit, Flask
- Data: Pandas, NumPy, FAISS, Scikit-learn
- Visualization: Matplotlib, Seaborn, D3.js
- Engineering: CATIA V5, ANSYS, SolidWorks
- Languages: English (fluent), French (B2)

PUBLICATIONS

Patent Publications:

• CN216857861U – Bending tool for metal pipe and machine (2022)
• CN116983049A – Thrombus aspiration device (2023)
• CN217492259U – Bending tool for medical metal tube (2022)