

# Can Jiang

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BeiJing - China

## RESEARCH OBJECTIVE

I am a passionate researcher focusing on advanced machine learning, particularly in foundational models and their applications in structure prediction and AI for Science (AI4S). My research interests span large language models (LLMs), generative AI, and their innovative applications in drug discovery and scientific computing. I am dedicated to developing novel approaches that combine deep learning architectures with domain-specific knowledge to address complex structural prediction challenges and advance the capabilities of AI systems in scientific applications.

## EXPERIENCE

### • ByteDance

AI PM Intern

July 2024 - Present

Beijing, China

- Developed AI-driven intelligent customer service bots, achieving a 30% increase in user query resolution rate across various e-commerce scenarios. Optimized bot performance by refining response algorithms and implementing user-driven metrics.
- Implemented prompt engineering and SFT (Supervised Fine-Tuning), enhancing bot response accuracy by 25% and reducing average response time by 15%.
- Conducted in-depth analysis of user interactions, applying statistical techniques to pinpoint areas for AI model improvement, directly elevating user satisfaction.

### • Kwai

AI Research Intern - Large Model Algorithms

June 2023 - June 2024

Beijing, China

- Engineered a BERT-based NLP system to enhance Event Extraction (EE) capabilities, improving precision in event recognition by 10% across large-scale datasets.
- Developed prompt engineering frameworks tailored for AI virtual anchors, increasing response relevance and coherence in live interactions.
- Implemented fine-tuned BERT models for natural language understanding (NLU) tasks, reducing model training time by 5% while maintaining high accuracy across multiple languages.

## EDUCATION

◦ **Tsinghua University**  
Bachelor of Software Engineering

Graduating 2025

Beijing, China

## PROJECTS

### ◦ Multilingual Event Graphs Construction and Implementation June 2023 - May 2024

Tools: KwaiYii (LLM developed by Kwai), Event Extraction, NLP, Python, Prompt Engineering

- \* Constructed multilingual event graphs leveraging KwaiYii large language models, covering Portuguese, Spanish, and Indonesian, thereby advancing event recognition and extraction across multiple languages.
- \* Utilized GPT-3.5/4 and Prompt Engineering to simplify event element extraction, significantly reducing complexity and enhancing the precision of event graph construction, leading to improved user engagement metrics such as a 0.080% increase in active device interaction and 0.245% improvement in push-pull rate.
- \* Developed a fine-grained event clustering system, efficiently aggregating similar event content across languages to enhance cross-regional analysis.

### ◦ LLM-based Video Generation and Optimization June 2023 - May 2024

Tools: KwaiYii (LLM developed by Kwai), Kolors (Kwai's text-to-image diffusion model), Automatic Editing Algorithm

- \* Developed an end-to-end short video generation system leveraging large language models (LLMs) for script generation, automatic editing, and music selection, reducing production time by 40% compared to traditional methods.
- \* Used KwaiYii to generate engaging video scripts, automatically segmented content into cohesive scenes, and designed transition mechanisms to maintain narrative flow and audience engagement.
- \* Utilized \*\*Kolors\*\*, Kwai's proprietary text-to-image diffusion model, to create photorealistic visual elements when source materials were unavailable, ensuring visual continuity and reducing dependency on manual asset creation.

- \* Developed a sentiment-driven music selection system, which dynamically aligns background music with video content tone. This innovation led to a patent titled "Automatic Selection of Background Music for Short Videos Based on Large Models."
- \* Enhanced user experience through AI-optimized video segmentation, aligning pacing with soundtrack transitions, thereby showcasing advanced LLM applications in multimedia content creation and setting a new standard in automated content production.

#### NER and Event Theme Extraction using GPT-Enhanced Methods

October 2023 - June 2024

Tools: GPT-4, Named Entity Recognition (NER), NLP, Python, Event Extraction Techniques

- \* Developed an advanced event theme recognition pipeline that integrates GPT-4 with Named Entity Recognition (NER) to accurately identify core themes in multilingual content, achieving a 10% increase in entity extraction accuracy.
- \* Designed a novel token assessment framework to address large model hallucination by assigning probabilistic weights to extracted entities, significantly enhancing the reliability of NER across diverse datasets.
- \* Secured a patent for "Event Extraction Method (CN117933256A)" based on this probabilistic approach, highlighting the technical novelty and commercial applicability of this extraction methodology.
- \* Applied the framework in multilingual scenarios to create structured event narratives, providing robust data pipelines for downstream NLP applications like summarization and topic clustering.

#### News Event Context Clustering and Timeline Analysis

June 2023 - June 2024

Tools: NLTK, spaCy, BERT, GPT, T5, OpenNLP, Python, NLP Techniques, Clustering Algorithms (KMeans, DBSCAN, Faiss)

- \* Preprocessed news content using advanced NLP techniques such as tokenization, lemmatization, and stemming to enhance content understanding.
- \* Utilized state-of-the-art models like BERT, GPT, and T5 for text classification tasks, including sentiment analysis, topic classification, and Named Entity Recognition (NER), improving the depth of contextual understanding.
- \* Implemented a multi-algorithm clustering approach using Faiss for efficient vector storage and retrieval, and optimized clustering models with K-Means, DBSCAN, and Hierarchical Clustering for improved coherence. This approach achieved a 14% enhancement in event grouping consistency, particularly in tracking complex, evolving news topics.
- \* Developed tools to generate timelines from clustered events, enabling the identification of temporal evolution and relationships between news events.

#### Event Element Recognition and Large Model Enhancement

October 2023 - June 2024

Tools: GPT-3.5/4, BERT, Prompt Engineering, Python, Multi-task Learning, OCR

- \* Developed a comprehensive event element recognition framework to extract key attributes such as time, location, and participants, enhancing event data granularity and interpretability for large-scale social media content.
- \* Integrated GPT-3.5/4 with BERT through prompt engineering to streamline event element extraction, achieving a 25% increase in extraction accuracy across multilingual datasets.
- \* Employed multi-task learning to simultaneously train models on event extraction, classification, and synopsis generation tasks, ensuring higher consistency and adaptability across diverse data sources.
- \* Applied OCR on video covers in combination with metadata analysis (e.g., video titles), refining clustering and enabling more accurate event-related content analysis, especially for short video platforms.

#### Hotspot Event Generalization and Distribution

Jan 2024 - March 2024

Tools: Recommender Systems, A/B Testing, Personalization Algorithms, Python

- \* Designed a scalable framework for hotspot event detection and distribution, enhancing the reach of trending content across platforms by identifying and generalizing key user engagement patterns.
- \* Applied personalized recommendation algorithms and performed extensive A/B testing to optimize distribution strategies, achieving a 15% increase in user retention and a 10% boost in interaction rates.
- \* Analyzed global user engagement through the distribution of hotspot content, leveraging behavioral insights to improve active device count by 0.08% and push click-through rates by 0.22%, supporting a data-driven approach to content curation.
- \* Developed adaptive distribution models that dynamically adjust based on real-time user interaction, ensuring optimal content reach and engagement, especially for emerging market segments.

#### News Understanding and Context Generation

June 2023 - May 2024

Tools: KwaiYii(LLM developed by Kwai), BERT, Python, NLP Techniques

- \* Utilized KwaiYii alongside BERT for entity recognition, enhancing the accuracy of news understanding and contextual content generation.
- \* Implemented advanced NLP techniques to improve contextual analysis, resulting in higher engagement metrics in personalized news delivery.
- \* Fine-tuned models for enhanced entity recognition and refined content recommendation algorithms, boosting user interaction by delivering more contextually relevant information.

## Cross-Department Collaboration for Event Graph Utilization

September 2023 - June 2024

Tools: Large-scale Data Mining, NLP, Personalized Recommendation, Python

- \* Collaborated with various departments, including overseas recommendation and NLP teams, to integrate event graphs into different content recommendation workflows, increasing user engagement across languages.
- \* Leveraged event graph data to enhance personalization in content delivery, resulting in a 7.778% increase in the number of videos with over 100K recommendations.
- \* Developed data-driven methodologies to generate continuous news narratives from event graphs, improving the depth and coherence of news content, thereby increasing user retention.

## AI Intelligent Customer Service

July 2024 - Present

Tools: Prompt Engineering, SFT (Supervised Fine-Tuning), Large Models, Python

- \* Researched and implemented AI-powered customer service solutions using prompt engineering and supervised fine-tuning (SFT), improving response accuracy by 25% and reducing response time by 30% across diverse e-commerce scenarios.
- \* Deployed customized AI customer service bots on Douyin's e-commerce platform, significantly reducing human intervention needs while maintaining high user satisfaction levels.
- \* Conducted extensive A/B testing to iteratively enhance bot performance based on user feedback and interaction data, resulting in a 20% increase in user satisfaction scores.
- \* Developed adaptive models capable of handling nuanced customer inquiries, ensuring consistent, contextually accurate responses, and setting a foundation for scalable AI-based customer service solutions.

## Emotion Analysis App

March 2024 - May 2024

Tools: Large Language Models (LLMs), Prompt Engineering, Python, NLP, Sentiment Analysis



- \* Developed an application utilizing large language models (LLMs) for sentiment analysis to process and interpret WeChat messages, providing detailed insights into user emotions and social dynamics.
- \* Enabled automatic trend analysis to monitor shifts in emotional tone across user interactions, supporting a deeper understanding of evolving social dynamics within user networks.
- \* Designed a user-friendly interface for visualizing emotional insights, making the app accessible for both casual and research-driven use cases, thereby broadening its applicability.

## PATENTS AND AWARDS

Patent: Event Extraction Method

CN117933256A

Patent: Automatic Selection of Background Music for Short Videos Based on Large Models.

Tsinghua Freshman Scholarship

Best Creativity Award, Tsinghua-Kuaishou Summer Practice (2023)

Finalist, Kuaishou 5th Hackathon (2023)

## LEADERSHIP EXPERIENCE

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### Time Corridor Art Exhibition

March 2024 - July 2024

Tsinghua University Art Museum and School of Humanities

- Served as an exhibition designer, responsible for planning and organizing the Time Corridor Art Exhibition, including layout design and content curation.
- Coordinated a multidisciplinary team to successfully execute the project, receiving high praise from exhibitors and visitors for its innovative presentation.

## SKILLS

- \* **Machine Learning:** TensorFlow, PyTorch, Scikit-learn, AlphaFold, Large Language Models (LLMs)
- \* **Natural Language Processing (NLP):** BERT, GPT, Prompt Engineering, Named Entity Recognition (NER)
- \* **Programming Languages:** Python, C++, Java
- \* **Statistical Analysis:** R, MATLAB, SciPy, NumPy

## ADDITIONAL INFORMATION

**Languages:** Chinese, English, Japanese(Basic)

**Interests:** Blockchain, Cryptocurrencies, Brain-Computer Interfaces, Football, Classical Music, Quantum Computing, Autonomous Vehicles, Philosophy of Mind, Space Exploration, AI Training Methods Based on the Human Brain and Psychology

**Research Interests:** Structure Prediction, Scientific Machine Learning, AI for Drug Discovery, Large Language Models, Generative AI