Wenyu Li

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Education Background

- **Uppsala University** Uppsala, Sweden
  Master's degree, Language Technology (Computational Linguistics) *Sept. 2024 – Jun. 2026*
  - Recipient of the Uppsala University International Scholarship Fund
  - Relevant courses: Language Technology: Research and Development, Natural language processing, Machine Learning in Natural language processing, Applications in Natural language processing, Information Retrieval, Machine Translation
- **Guangdong University of Foreign Studies** Guangzhou, China
  Bachelor's degree, Urdu; GPA: 3.79/4.00 *Sept. 2020 – Jun. 2024*
  - Solid linguistic foundation with cross-cultural communication expertise

Professional Skills

- **Programming & Tools**: Python, Linux, Git, Docker, SQL
- **ML/DL Frameworks**: PyTorch, Hugging Face Transformers, scikit-learn, NumPy, Pandas, FAISS
- **Core NLP Competencies**: AI-generated text detection; Text classification and sequence labeling; information retrieval (sparse/dense/hybrid); cross-lingual transfer and low-resource MT
- **Transformer Models**: Fine-tuning and evaluation of BERT, RoBERTa, mBART, NLLB, Sentence-Transformers; prompt engineering with GPT-family models; specialized forensic analysis and detection of DeepSeek-generated text
- **Model Analysis & Security**: Explainability methods (Integrated Gradients, LIME, deletion tests); adversarial evaluation; output distribution analysis; faithfulness testing
- **Evaluation & Experimentation**: Precision-recall analysis, ranking metrics (MAP, NDCG, Recall@k), BLEU, statistical significance testing, A/B testing, systematic error analysis

English Proficiency

- **IELTS: 7.5**
- **Academic English**: Fluent in reading, writing, and presenting technical content
- **Working Languages**: English (fluent), Chinese (native), Urdu (advanced)

Relevant Work & Professional Experience

- **Shandong Keli Digital Intelligence Technology Co., Ltd.** Zibo, China
  NLP Engineer Intern *Jun. 2025 – Aug. 2025*
  - Contributed to an internal AIGC detection system initially targeting DeepSeek-generated Chinese text, with a modular pipeline designed for robust extension to other LLMs via configurable feature extraction and calibration.
  - Implemented interpretable, distributional detection signals by developing feature-extraction scripts for sentence-length dynamics and sliding-window perplexity-variance monitoring (5–20 sentences).
  - Supported building an attack–defense sandbox by implementing parts of the misclassification-replay workflow and helping maintain an evolving attack library for iterative retraining.

Research Experience

- **Extraction & Structured Representation of Sustainability Principles** Stockholm, Sweden
  Master's Thesis Research Project, Sustainable AI Solutions (SAIS) *Jan. 2026 – Present*
  - Scoping a pipeline to ingest sustainability literature and prepare text for extraction (cleaning, segmentation, provenance/metadata).
  - Designing structured representations of sustainability principles (fact sheets, triples, lightweight KG-style) with source-span provenance for traceability.
  - Prototyping extraction baselines for principles/constraints (sentence filtering + span extraction) and drafting annotation guidelines.

- **Faithfulness Evaluation for Text Explanation Methods on BERT** Uppsala, Sweden
  Course Research Project, Uppsala University *Sept. 2025 – Jan. 2026*
  - Fine-tuned BERT-base-uncased on SST-2 (GLUE) and evaluated explanation faithfulness on the validation set (872 examples), reaching 92.5% validation accuracy.
  - Implemented a deletion-based faithfulness test: remove top-ranked tokens ranked by each explainer and measure the mean drop in predicted probability; reported both per-k drops and AOPC as an aggregated metric.
  - Benchmarked three explainers under a consistent evaluation setup (Integrated Gradients with 30 steps; last-layer [CLS] attention averaged over heads; LIME with 500 perturbation samples) and compared against a random-deletion baseline (N=5 repeats).
  - Conducted significance testing (Wilcoxon signed-rank) and qualitative case studies to identify failure modes (e.g., attention focusing on punctuation/stopwords) and documented an efficiency–faithfulness trade-off via runtime profiling.
- **Retrieval-Augmented Generation (RAG) System with Hybrid Search** Uppsala, Sweden
  Independent Project, Uppsala University *Dec. 2025 – Jan. 2026*
  - Benchmarked sparse (BM25), dense (BGE, E5 via FAISS), and hybrid (RRF fusion) retrieval on BEIR SciFact (5,183 documents, 300 queries) under unified evaluation protocol.
  - Dense retrieval improved ranking quality over BM25 (NDCG@10: 0.720 vs. 0.662; MAP@10: 0.676 vs. 0.620), while hybrid RRF achieved strongest coverage (Recall@100: 0.965 vs. 0.876 for BM25-only).
  - Built Streamlit-based analysis interface with qrels-grounded hit@K inspection and Top-K controls, enabling qualitative error analysis and reproducible method comparison.
- **Cross-Lingual Information Retrieval for Low-Resource Languages** Uppsala, Sweden
  Course Group Project, Uppsala University *Apr. 2025 – Jun. 2025*
  - Benchmarked Croatian news IR ranking on a 2,109-document collection, comparing TF-IDF, BM25, and multilingual SBERT-based re-ranking.
  - Built a Croatian-aware retrieval pipeline with CLASSLA lemmatization and BM25 scoring, and evaluated two-stage retrieval (BM25 $\rightarrow$ SBERT) under varying candidate sizes.
  - Found BM25 to be a strong baseline (MAP 0.8466), while SBERT v2 improved semantic matching at small k but degraded for larger candidate pools.
  - Performed error/ablation analyses on language coverage and auxiliary similarity signals, highlighting limitations of cross-lingual encoders for morphologically rich retrieval.
- **Low-Resource Machine Translation: Luganda to English** Uppsala, Sweden
  Course Group Project, Uppsala University *Sept. 2025 – Nov. 2025*
  - Fine-tuned multilingual NMT models (mBART-50, NLLB-200 distilled 600M) for Luganda–English MT on the SALT corpus ($\sim$25k parallel pairs), targeting a morphologically rich low-resource Bantu language.
  - Conducted controlled benchmarking against copy and Google Translate baselines, showing substantial BLEU gains via fine-tuning (mBART: 7.60$\rightarrow$25.93; NLLB: 15.62$\rightarrow$35.99).
  - Implemented a back-translation pipeline with a reverse-direction model, but observed no additional improvement over the fine-tuned NLLB system (35.99 BLEU), suggesting limited effectiveness of back-translation under low-resource conditions.
  - Performed qualitative error analysis to characterize semantic adequacy and domain-term fidelity, and discussed limitations of BLEU under data-quality constraints.

Honours & Awards

- **Uppsala University International Scholarship (2025-2026)** : Tuition reduction for academic excellence (VG grades across all courses during the previous semester).
- **China Scholarship Council (CSC) National Scholarship (2022)**: Top-ranked student in the department, full scholarship for an international exchange program at the National University of Modern Languages, Pakistan (relinquished due to COVID-19).