Potsawee Manakul

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Education

University of Cambridge — Cambridge, UK
Ph.D. Candidate in Information Engineering (Computer Science) — *Oct 2019 – Apr 2024 (expected)*

- Work in the Machine Intelligence Lab under the supervision of Prof. Mark Gales
- Recipient of the Cambridge International & St John's College Scholarship
- Research Areas: Natural Language Processing (NLP) and Machine Learning (ML)
  → Summarization, Question-Answering, Large Language Model, Hallucination Detection
- First-author publications at top-tier NLP/AI conferences, e.g. **ACL**, **EMNLP**, ***ACL**, **InterSpeech**

University of Cambridge — Cambridge, UK
B.A. and M.Eng. in Information and Computer Engineering — *Oct 2015 – Jun 2019*

- **top 1%** in the first-year undergraduate examination
- **top 3%** in the second-year undergraduate examination
- **top 4%** in the third-year undergraduate examination
- **Honour with Distinction** in the fourth-year (Masters Program)

Industry Experience

SCB 10X — Thailand & Remote
AI Researcher (Contract) — *Nov 2023 – Feb 2024*

- Developed state-of-the-art open-source Thai Large Language Model (LLM) – Typhoon-7B
- Developed Thai LLM Evaluation Benchmarks
- Tech Report: https://arxiv.org/abs/2312.13951, Model: https://huggingface.co/scb10x/typhoon-7b

Amazon — Berlin, Germany
Applied Scientist Intern — *Sep 2021 – Mar 2022*

- Developed video summarization model which improved automation rate by 4%
- Published a paper at the Amazon Computer Vision Conference (ACVC) 2022

Machine Intelligence Lab, Engineering Department — Cambridge, UK
Undergraduate Research Intern — *Jun 2018 – Aug 2018*

- Developed deep learning models for grammatical error detection
- Co-authored a paper accepted at ICASSP 2019

MediaTek — Cambourne, UK
Software Engineering Intern — *Jun 2017 – Sep 2017*

Healthera — Cambridge, UK
Software Engineering Intern — *Jun 2016 – Aug 2016*

Selected Publications

**Google Scholar*: https://scholar.google.com/citations?hl=en&user=dVgn6boAAAAJ

- A. Liusie, **P. Manakul** and M.J.F. Gales, "LLM Comparative Assessment: Zero-shot NLG Evaluation through Pairwise Comparisons using Large Language Models", in **EACL** 2024 (main).
- **P. Manakul**, A. Liusie and M.J.F. Gales, "SelfCheckGPT: Zero-Resource Black-Box Hallucination Detection for Generative Large Language Models", in **EMNLP** 2023 (main).
- **P. Manakul**, A. Liusie and M.J.F. Gales, "MQAG: Multiple-choice Question Answering and Generation for Assessing Information Consistency in Summarization", in **AACL** 2023 (main).
  → Area Chair Award (Generation and Summarization)

- **P. Manakul**, Y. Fathullah, A. Liusie, V. Raina, V. Raina, and M.J.F.. Gales, "CUED at ProbSum 2023: Hierarchical Ensemble of Summarization Models", in **BioNLP Workshop at ACL** 2023.
  → Best-performing system on the Problem List Summarization shared task
- **P. Manakul** and M.J.F. Gales, "Sparsity and Sentence Structure in Encoder-Decoder Attention of Summarization Systems", in **EMNLP** 2021 (main).
- **P. Manakul** and M.J.F. Gales, "Long-Span Summarization via Local Attention and Content Selection", in **ACL** 2021 (main).
- **P. Manakul** and M.J.F. Gales, "CUED_SPEECH at TREC 2020 Podcast Summarisation Track", in Text REtrieval Conference (**TREC**) 2020.
  → Won 1st place in the Spotify Podcast Summarisation Track, out of 8 teams & 22 systems
- **P. Manakul**, M.J.F. Gales, L. Wang, "Abstractive Spoken Document Summarization Using Hierarchical Model with Multi-Stage Attention Diversity Optimization", in **InterSpeech** 2020.
  → Best Student Paper Finalist

Open-source Projects and Models

- **SelfCheckGPT**: https://github.com/potsawee/selfcheckgpt
  → Package for LLM Hallucination Detection
  → >300 starts on GitHub & 8,000 downloads via PyPI
  → Featured in deeplearning.ai, Washington Post, ML Collective, etc.
- **MQAG**: https://github.com/potsawee/mqag0
  → Various open-source Question Generation and Question Answering models
  → >50k downloads on HuggingFace (https://huggingface.co/potsawee)
- **Typhoon-7B**: https://opentyphoon.ai/ & https://huggingface.co/scb10x/typhoon-7b
  → Part of the team that creates open-source Thai LLM
  → 7B Model with performance comparable to GPT-3.5 and $\times$2.6 more efficient in tokenization

Selected Honours & Awards

ML/AI Awards

- AACL-IJCNLP 2023 Area Chair Paper Award (Generation and Summarization)
- 1st place in the Medical Note Problem List Summarization at the BioNLP Workshop at ACL 2023
- 1st place in the Spotify Podcast Summarization Challenge at TREC 2020 Podcasts Track
- InterSpeech 2020 Best Student Paper Finalist

University Scholarships and Awards

- Cambridge International & St John's College Scholarship (Full funding for PhD) — 2019
- UARP (Undergraduate Academic Research Project) — 2018
- Winifred Georgina Holgate Pollard Memorial Prize (University Prize) — 2017
- BP 1st Year Prize (for achieving top 1% in 1st-year undergraduate engineering) — 2016

Olympiads

- Silver Medal from 45th International Physics Olympiad (IPhO) in Astana, Kazakhstan — 2014
- Gold Medal from 15th Asian Physics Olympiad (APhO) at National University of Singapore — 2014
- Bronze Medal from 14th Asian Physics Olympiad (APhO) in Bogor, Indonesia — 2013

Invited Talks

- ML Collective - Deep Learning: Classics and Trends (DLCT), August 2023
  Topic: LLM Hallucination Detection and SelfCheckGPT [Link]
- Washington Post Interview, May 2023
  Topic: AI Hallucination [Link]
- ALTA Technology Seminar (Cambridge University Press & Assessment), November 2022
  Topic: Assessing Information Consistency in Summarization
- Speech Seminar (Engineering Department, Cambridge University), May 2021
  Topic: Long Sequence-to-Sequence Modelling and Summarization

PROFESSIONAL SERVICES

Reviewer

- ACL Rolling Review 2024
- ICLR 2024
- NeurIPS 2023
- ICML 2023
- InterSpeech 2023
- IEEE Transactions on Audio, Speech, and Language Processing 2022, 2023

Teaching Experience at Cambridge

- Third-year Undergraduate: 3F7 Information Theory and Coding
- Second-year Undergraduate: 2P7 Vector Calculus, Linear Algebra, Probability
- MPhil in Machine Learning and Machine Intelligence: MLMI13 Introduction to NLP
- First-year Undergraduate: Engineering Lego Lab

Updated: February 2024