

Asahi Ushio

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RESEARCH AREA

Machine Learning, Natural Language Processing, Language Understanding, Information Retrieval,

EDUCATION

10/2020 - **Ph.D.** in Computer Science & Information

Cardiff University, UK

Advisor: Jose Camacho Collados, Steven Schockaert

Area of study: Language model understanding, Question and answer generation,
NLP for social media.

04/2016 - 03/2018 **M.E.** in Electrical Engineerings

Keio University, Kanagawa, Japan

Advisor: Masahiro Yukawa

Thesis: Projection-based Regularized Dual Averaging for Stochastic Optimization

Area of study: Stochastic optimization, Online learning, Sparsity-aware filtering

04/2011 - 03/2016 **B.E.** in Electrical Engineerings

Keio University, Kanagawa, Japan

Thesis:

(1) An Online Kernel Method Based on Orthogonal Projection Reflecting Multiple Tasks

Advisor: Masahiro Yukawa

Area of study: Multi-task learning, Adaptive learning, Kernel method

(2) Stock Return Prediction by Stochastic Model with Variance Risk Premium

Advisor: Teruo Nakatsuma

Area of study: Bayesian forecasting, Stochastic volatility, MCMC

PUBLICATIONS

Conference Proceedings

Asahi Ushio, Fernando Alva-Manchego, and Jose Camacho-Collados, "A Practical Toolkit for Multilingual Question and Answer Generation," in Proceedings of ACL system demonstrations, July 2023.

Asahi Ushio, Fernando Alva-Manchego, and Jose Camacho-Collados, "An Empirical Comparison of LM-based Question and Answer Generation Methods," in Proceedings of ACL findings, July 2023.

Asahi Ushio, Fernando Alva-Manchego, and Jose Camacho-Collados, "Generative Language Models for Paragraph-Level Question Generation: A Unified Benchmark and Evaluation," in Proceedings of EMNLP main conference, December 2022.

Jose Camacho-Collados, Kiamehr Rezaee, Talayeh Riahi, Asahi Ushio, Daniel Loureiro, Dimosthenis Antypas, Joanne Boisson, Luis Espinosa-Anke, Fangyu Liu, Eugenio Martinez-Camara, Gonzalo Medina, Thomas Buhrmann, Leonardo Neves, and Francesco Barbieri, "TweetNLP: Cutting-Edge Natural Language Processing for Social Media," in Proceedings of EMNLP: System Demonstrations, December 2022.

Asahi Ushio, Leonardo Neves, Vitor Silva, Francesco Barbieri, and Jose Camacho-Collodos, "Named Entity Recognition in Twitter: A Dataset and Analysis on Short-Term Temporal Shifts," in Proceedings of ACL main conference, November 2022.

Dimosthenis Antypas*, Asahi Ushio*, Leonardo Neves, Vitor Silva, Francesco Barbieri, and Jose Camacho-Collodos, "Twitter Topic Classification," in Proceedings of COLING main conference, October 2022 (*Equal contribution).

Asahi Ushio, Steven Schockaert, and Jose Camacho-Collodos, "Distilling Relation Embeddings from Pre-trained Language Models," in Proceedings of EMNLP main conference, November 2021.

Asahi Ushio, Federico Liberatore, and Jose Camacho-Collodos, "Back to the Basics: A Quantitative Analysis of Statistical and Graph-Based Term Weighting Schemes for Keyword Extraction," in Proceedings of EMNLP main conference, November 2021.

Asahi Ushio, Luis Espinosa-Anke, Steven Schockaert, and Jose Camacho-Collodos, "BERT is to NLP what AlexNet is to CV: Can Pre-Trained Language Models Identify Analogies?," in Proceedings of ACL main conference, August 2021.

Asahi Ushio and Jose Camacho-Collodos, "T-NER: An All-Round Python Library for Transformer-based Named Entity Recognition," in Proceedings of EACL: System Demonstrations, April 2021.

Asahi Ushio, Masahiro Yukawa, "Projection-based Dual Averaging for Stochastic Sparse Optimization," in Proceedings of 42nd IEEE ICASSP, pp.2307–2311, New Orleans: USA, March 2017.

Workshop Proceedings

Asahi Ushio, and Danushka Bollegala "Zero-shot Cross-Lingual Counterfactual Detection via Automatic Extraction and Prediction of Clue Phrases," Proceedings of the 2nd Workshop on Multilingual Representation Learning

Aleksandra Edwards, Asahi Ushio, Jose Camacho-Collados, Helene de Ribaupierre, and Alun Preece "Guiding Generative Language Models for Data Augmentation in Few-Shot Text Classification," Proceedings of the 3rd Workshop on Data Science with Human in the Loop

Journal Articles

Asahi Ushio and Masahiro Yukawa, "Projection-based Regularized Dual Averaging for Stochastic Optimization," IEEE Trans. Signal Processing, vol.67, no.10, pp.2720–2733, May 2019.

Ken McAlinn, Asahi Ushio, and Teruo Nakatsuma, "Volatility Forecasts Using Nonlinear Leverage Effects," Journal of Forecasting, 2019.

Miscellaneous

Asahi Ushio, Yi Zhou, and Jose Camacho-Collodos, "An Efficient Multilingual Language Model Compression through Vocabulary Trimming," arXiv:2305.15020, May 2023.

Asahi Ushio, Jose Camacho-Collodos, and Steven Schockaert, "A RelEntLess Benchmark for Modelling Graded Relations between Named Entities," arXiv:2305.15002, May 2023.

Max F. Frenzel, Bogdan Teleaga, Asahi Ushio, "Latent Space Cartography: Generalised Metric-Inspired Measures and Measure-Based Transformations for Generative Models," arXiv:1902.02113, Feb 2019.

Yoshifumi Seki, Asahi Ushio, Takeshi Yoneda, Yutaka Matsuo, "Analyzing User Behavior in News App towards Detecting Click-Bait News," IEICE, Text Analysis symposium, Sep 2017 (Japanese only).

Asahi Ushio, Yoshinobu Takahashi, Seiya Satoh, Hiroshi Yamakawa, "A Research for Efficient Equivalence Structure Search by Local Distribution of Variables," IEICE, Information-Based Induction Sciences and Machine Learning, Nov 2016 (Japanese only).

Asahi Ushio, Ken McAlinn, Teruo Nakatsuma, "Nonlinear Leverage Effects in Asset Returns: Evidence from the U.S. and Japanese Stock Markets," 9th International Conference on Computational and Financial Econometrics, Dec, 2015.

Asahi Ushio, Masahiro Yukawa, "Multi-task Learning with Operator-valued Reproducing Kernels," IEICE, Signal Processing symposium, Nov, 2015.

Asahi Ushio, Ken McAlinn, Teruo Nakatsuma, "Estimate the Leverage Function of Stochastic Volatility Model by Particle Learning," The Japanese Association of Financial Econometrics and Engineering, JAFEE, 42th, Jan, 2014.

EXPERIENCE

06/2023 - 10/2023 RESEARCH SCIENTIST (Internship)

Google, Zurich, Switzerland

- Topic: Music Captioning via Large Language Model Fine-tuning
- Team: MusicLM/Muso
- Hosts: Andrea Agostinelli and Matej Kastelic
- Experiences:
 - ◇ Fine-tune PaLM2 on a mixture of audio and text tasks with Pax.
 - ◇ Implement custom datasets, tasks, and evaluation metrics on seqIO.
 - ◇ Process audio dataset with audio representation models such as MuLan and w2v-BERT.

09/2021 - 12/2021 RESEARCH SCIENTIST (Internship)

SNAP, L.A, U.S.

- Advisor: Francesco Barbieri, Vitor Silva Sousa and Leonardo Neves
- Topic: Temporal-aware named-entity recognition in noisy SNS data.

06/2021 - 09/2021 APPLIED RESEARCH SCIENTIST (Internship)

Amazon, Tokyo, Japan

- Advisor: Danushka Bollegala
- Topic: Research on multilingual counterfactual sentence detection.

02/2018 - 10/2020 MACHINE LEARNING SCIENTIST (Full-time)

Cogent Labs, Tokyo, Japan

- Research on natural language understanding, information retrieval, generative models
- Develop product-level APIs for AI services, maintain relational database, and make efficient data pipeline
- Provide consultation for AI solutions

07/2017 - 11/2017 RESEARCHER (Internship)

Cogent Labs, Tokyo, Japan

- Research on brain computer interface and biomedical signal processing

TEACHING

10/2022 - 08/2023 TEACHING ASSISTANT AT CARDIFF UNIVERSITY,

Cardiff University, Computer Science and Informatics

- Support modules of Fundamentals of Programming (CMT120), and Distributed and Cloud Computing (CMT202).

04/2016 - 09/2016 TEACHING ASSISTANT AT KEIO UNIVERSITY,

Keio University, Department of Electronics and Electrical Engineering

- Support a module of electrics and electrical engineering experiment, a mandatory module for undergrad student in Department of Electronics, Electrical Engineering, Keio University.

SCHOLARSHIP

10/2020 - 09/2023 PhD Scholarship 2020

School of Computer Science & Informatics, Cardiff University

£15,285 per year & the international student tuition fees

04/2016 - 03/2018 Postgrad Scholarship

Fuji Seal Packaging Education and Scholarship Foundation

\$ 1,200 per year

ADDITIONAL SKILLS

LANGUAGE: Japanese, English, Chinese (Conversational)

SOFTWARE: Python (tensorflow, pytorch, sklearn), PostgreSQL, Docker, Flutter for web, GCP, AWS

GitHub <https://github.com/asahi417>

Last updated: October 20, 2023