

Zixiu “Alex” Wu

NLP Data Scientist & PhD Candidate

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- Artificial Intelligence researcher with over 4 years of experience in natural language processing and data science
- Over 3 years of extensive collaboration with industrial and academic partners on human-centered innovation
- Author of 8 publications in peer-reviewed conferences, including 7 first-author papers

🔍 R&D EXPERIENCE

INDUSTRIAL : MARIE CURIE FELLOW AT DEPARTMENT OF AI, DATA SCIENCE & DIGITAL TWIN 01/2020 - PRESENT

Philips Research

📍 Eindhoven, NL

- Leading 1st domain-knowledge-based AI-driven analysis of Philips call center data to identify key reasons affecting customer experience, currently reaching 86% accuracy
- Analysed social media data using advanced deep learning to pinpoint main reasons behind complaints about certain Philips devices
- Developed AI-based forecasters of ICU patient condition deterioration using texts and vitals records
- Created an intelligent, empathetic and commonsense-aware customer agent bot that follows up with patients receiving certain treatments, using advanced AI. The bot was demonstrated on behalf of Philips to high-level officials from the Dutch government and the EU
- Authored 3 invention disclosures
- Mentored 2 junior data scientists over their internship programmes

ACADEMIC (PHD) : ANALYTICAL & ASSISTIVE NATURAL LANGUAGE PROCESSING FOR COUNSELLING 01/2020 - PRESENT

Philips Research & University of Cagliari

📍 Eindhoven, NL

- Leading an NL-UK-Italy project on providing real-time suggestions for the human therapist in an on-going counselling session, focusing on “What could the therapist say next?” given the dialogue so far. 2 publications planned for the 61st Annual Meeting of the Association for Computational Linguistics
- Built the 1st ever benchmark for next-move therapist action forecasting in a live counselling session. 1 paper presented at Interspeech 2022 (2k-attendee conference)
- Created the 1st ever publicly and freely available expert-annotated dataset of counselling dialogues. 1 paper presented at the 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (4k-attendee conference)
- Authored 4 other publications on NLP for counselling at impactful peer-reviewed conferences

🎓 EDUCATION

06/2023	PhD, Mathematics & Computer Science	Philips Research & University of Cagliari	Eindhoven, NL
11/2019	MSc, Advanced Computing	Imperial College London	London, UK
07/2018	BSc, Computer Science (joint degree)	University of Birmingham	Birmingham, UK
07/2018	BEng, Software Engineering (joint degree)	Sun Yat-sen University	Guangzhou, CN



📋 SKILLS

Data Science	Python (PyTorch, NumPy, Pandas, Scikit-learn, Keras among others), Deep Learning, Machine Learning, SQL (Postgres), JavaScript, HTML/CSS, Git, AWS, Unix
Specialties	Natural Language Understanding, Natural Language Generation, Conversational Intelligence, Knowledge Representation, Data Collection & Evaluation (e.g., crowdsourcing-based)
Soft Skills	AGILE, Value Creation Mindset, Effective Communication with Stakeholders, Teamworking, Research, Project Management, Public Speaking, Critical Thinking
Languages	English (C2), Chinese (Native), Dutch (A2), Italian (A2), Japanese (N3)

HONOURS & AWARDS

2020-2022	Marie Skłodowska-Curie Grant - PhD Scholarship (European Union's Horizon 2020 Programme)
2019	Distinguished Thesis Project (Imperial College London)
2017	International Student Scholarship (University of Birmingham)
2016	International Student Scholarship (University of Birmingham)
2016	Second Prize, China Undergraduate Mathematical Contest in Modelling (Guangdong Division)
2016	China National Scholarship
2016	First-Class Scholarship for Outstanding Student (Sun Yat-sen University)
2015	Second-Class Scholarship for Outstanding Student (Sun Yat-sen University)

OTHER WORK EXPERIENCE

SOFTWARE ENGINEER INTERN	2018
Sabre Airline Solutions	 Shanghai, CN
<ul style="list-style-type: none">Developed programs for gathering, updating, and visualisation of flight, ticket-purchase, and gate-plan data, as a member of the Operations Research team.	
SUMMER INTERN	2017
GF Securities	 Nanjing, CN
<ul style="list-style-type: none">Conducted a feasibility report for an app feature predicting future stock trends using historical data.	

PUBLICATIONS

- **Zixiu, Wu**, Simone Balloccu, Rim Helaoui, Diego Reforgiato Recupero, Daniele Riboni. "Towards In-Context Non-Expert Evaluation of Reflection Generation for Counselling Conversations" *In Proceedings of the 2nd Workshop on Natural Language Generation, Evaluation, and Metrics (GEM) @ EMNLP* 2022. Dec 2022.
- **Zixiu, Wu**, Rim Helaoui, Diego Reforgiato Recupero, Daniele Riboni. "Towards Automated Counselling Decision-Making: Remarks on Therapist Action Forecasting on the AnnoMI Dataset" *In Proceedings of Interspeech 2022*. Sep 2022. Oral presentation.
- Vivek Kumar, Simone Balloccu, **Zixiu Wu**, Ehud Reiter, Rim Helaoui, Diego Reforgiato Recupero, Daniele Riboni. "Data Augmentation for Reliability and Fairness in Counselling Quality Classification" *In Proceedings of the IJCAI workshop on Scarce Data in Artificial Intelligence for Healthcare @ IJCAI* 2022. Jul 2022.
- **Zixiu, Wu**, Simone Balloccu, Vivek Kumar, Rim Helaoui, Ehud Reiter, Diego Reforgiato Recupero, Daniele Riboni. "AnnoMI: A Dataset of Expert-Annotated Counselling Dialogues" *In Proceedings of the 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. May 2022. Oral presentation.
- **Zixiu, Wu**, Rim Helaoui, Diego Reforgiato Recupero, Daniele Riboni. "Towards Low-Resource Real-Time Assessment of Empathy in Counselling" *In Proceedings of the Seventh Workshop on Computational Linguistics and Clinical Psychology: Improving Access (CLPsych) @ NAACL* 2021. Jun 2021. Oral presentation.
- **Zixiu, Wu**, Rim Helaoui, Vivek Kumar, Diego Reforgiato Recupero, Daniele Riboni. "Towards Detecting Need for Empathetic Response in Motivational Interviewing" *In Companion Publication of the 2020 International Conference on Multimodal Interaction*. Oct 2020. Oral presentation.
- **Zixiu, Wu**, Ozan Caglayan, Julia Ive, Josiah Wang, Lucia Specia. "Transformer-based Cascaded Multimodal Speech Translation" *In Proceedings of the 16th International Conference on Spoken Language Translation (IWSLT) @ EMNLP* 2019. Nov 2019.
- **Zixiu Wu**. "Probing the Role of Video Context in Multimodal Machine Translation with Source Corruption" *In Imperial College London (Master's Thesis)*. Sep 2019. Awarded "Distinguished Project" by Department of Computing.
- **Zixiu Wu**, Julie Ive, Josiah Wang, Pranava Madhyastha, Lucia Specia. "Predicting Actions to Help Predict Translations" *In Proceedings of The How2 Challenge: New Tasks for Vision & Language @ ICML* 2019. Jun 2019.