Terry Yue **Zhuo**

RESEARCHER · PROGRAMMER

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"DWIC is never enough!"

Summary

Current Computer Science Undergraduate at UNSW. Experience in digital signal processing, quantum computing and natural language processing. Research interests lie in question answering, language model and vision-language grounding. Super nerd who loves Python, C++ and Linux and enjoys to customize all of the development environment. Interested in devising a better problem-solving method for challenging tasks, and learning new technologies and tools if the need arises.

Work Experience

CSE, UNSW
Sydney, Australia

RESEARCH STUDENT, SUPERVISED BY **Lizhen Qu** AND **Lina Yao**
Feb. 2021 - Present

- Self-proposed research project: **Visual Commonsense Reasoning in Complex Events Detection**

Harrison.ai
Sydney, Australia

APPLIED AI SCIENTIST INTERN, SUPERVISED BY **Ben Hachey**
Dec, 2020 - Feb, 2021

- Develop AI algorithms, prototypes and solutions for **Prioritization of patients' CT Brain reports.**
    Linked entity fuzzy search via sense2vec + SciSpacy + stanza + FastText
    Contextual word semantic search via domain adaptive DistilBERT in an unsupervised fashion
    Mean pooling sentence semantic search via domain adaptive DistilBERT in an unsupervised fashion
    Sentence semantic search via BioSentVec + FastText
    Sentence semantic search via DistilBERT (with BERT-flow)
    Anserini+BM25+RM3+SBERT cross-encoder

Data61, CSIRO
Remote

EXTERNAL RESEARCH STUDENT, SUPERVISED BY **Conrad Sanderson**, WORK WITH **Jason Rumenagan**
Dec, 2020 - Present

- **PyArmadillo**, a API library of **Armadillo** using Python-C++ bindings
    Write and design under the product development flow with the Data61 vacation scholar.
    Open-source minimum viable product(MVP) at the first stage.

Monash Univeristy
Remote

RESEARCH ASSISTANT, SUPERVISED BY **Reza Haffari** AND **Lizhen Qu**
May, 2020 - Present

- Project: **Commonsense Reasoning Question Answering**
    Apply ProphetNet as the backbone for the model trained on ATOMIC data.
    Evaluate the proposed model results.
    Co-authored a long paper accepted by COLING 2020.
    Co-authored a short paper submitted ACL 2021.
- Project: **Construction of a Multimodal Procedural Knowledge Base for Action Planning**
    Design and collect crowdsourcing data via Amazon Mechanical Turk.
    Design the baseline and propose a multimodal action planning model via the knowledge base.
    A long paper for ICCV 2021 is under preparation.

UNSW Sydney
Sydney, Australia

CASUAL ACADEMIC/TUTOR
Feb, 2020 - Present

- **ENGG1000**: Introduction to Engineering Design and Innovation:
    20T1, 20T3(100% student satisfaction), 21T1
- **ELEC2134**: Circuits and Signals:
    The only undergraduate in the team while remains are PhDs.
    20T1, 20T3, 21T1
- **COMP1010**: The Art of Computing:
    21T1(Backup)
- **COMP2521**: Data Structures and Algorithms:
    21T1
- **COMP9020**: Foundations of Computer Science* (**Graduate Course**):
    21T1
- **COMP9021**: Principles of Programming* (**Graduate Course**):
    21T1
- **COMP9024**: Data Structures and Algorithms* (**Graduate Course**):
    21T1

Quantum Computation and Communication Technology (CQC2T), UNSW Sydney   *Sydney, Australia*

Research student, Supervised by **Arne Laucht**   *Nov, 2019 - Sep, 2020*

- Propose a research project of digitizing the lock-in amplifier in MATLAB.
- Propose the implementation structure of the digitizing lock-in amplifier in the team's quantum computing system.

Microsoft   *Shanghai, China*

Software Engineering Intern   *Dec, 2019 - Feb, 2020*

- Apply Azure SQL DB/DW, Azure Data Lake Storage, Azure Data Lake Analytics, Azure Machine Learning, Stream Analytics, Azure Data Factory, or Cosmos DB to companies' data.
- Design cloud architecture for top tier companies.

Project

PyArmadillo   *Data61*

Co-lead developer   *Dec, 2020 - Present*

- Design and develop the Cube class in PyArmadillo.
- Validate the performance of the library.
- Write the user document.
- Design the tests.

Off-world Robotics Project, Vertically Integrated Project   *UNSW Sydney*

Researcher   *Feb, 2020 - Dec, 2020*

- Determine the constraints of our embedded systems, sourcing embedded boards for use on the prototype rovers, and testing them with an RTOS or scheduling architecture.
- Research existing approaches to the SLAM problem, comparing them, and proposing a SLAM system for use on the rovers.

Py Googletrans   *Github*

Contributor, Collaborator   *May, 2020 - Present*

- Googletrans: Free and Unlimited Google translate API for Python. Translates totally free of charge.

Sphinx Markdown Builder   *Github*

Contributor   *May, 2020 - Present*

- Sphinx builder that outputs markdown files.

Education

UNSW Sydney (University of New South Wales)   *Sydney, Australia*

B.S. in Computer Science and Engineering (minor in Electrical Engineering)   *Jul. 2018 - Sep. 2021(Expected)*

- Weighed Average Mark 86.3, Top 3% in Faculty of Engineering

Extracurricular Activity

BLUESAT   *UNSW Sydney*

Power Engineer   *Oct, 2019 - Dec, 2020*

- Working on the satellite project which will be launched in 2021-2022.
- Supervising in MPPT board testing and designing.

ELSOC UNSW   *UNSW Sydney*

Academic Tutor, Sub-committee Member   *May. 2019 - Present*

- Ran crashcourses (lectures) where more than twenty students on average attended.

Publication

PyArmadillo: an alternative approach to linear algebra in Python   *Journal of Open Source Software*

Jason Rumengan, **Terry Yue Zhuo**, Conrad Sanderson   *In Prepartion*

Neural Symbolic Commonsense Reasoner with Relation Predictors   *ACL 2021*

Submitted to ACL 2021   *In Submission*

Honors & Awards

2019	**Dean's Honours List (Highly Commended),** Top 2% of UNSW Engineering	*Sydney*
2019	**Taste of Research scholarships Recipient (A$5,000),** TOP 12 of UNSW Engineering	*Sydney*
2020	**Taste of Research scholarships Recipient (A$6,000),** TOP 43 of UNSW Engineering	*Sydney*

Service

2021	**Volunteer**, AAAI 2021	*Online*
2020	**Volunteer**, EMNLP 2020	*Online*
2020	**Volunteer**, NeurIPS 2020	*Online*
2020	**Volunteer**, WiNLP 2020	*Seattle, WA*

Honors & Awards