

# 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

### IT, Monash

TEACHING ASSISTANT

Melbourne, Australia

Mar, 2021 - Present

- **FIT5217**: Natural language processing: 21S1

### CSE, UNSW

RESEARCH STUDENT, SUPERVISED BY **Lizhen Qu** AND **Lina Yao**

Sydney, Australia

Feb. 2021 - Present

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

### Harrison.ai

APPLIED AI SCIENTIST INTERN, SUPERVISED BY **Ben Hachey**

Sydney, Australia

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

EXTERNAL RESEARCH STUDENT, ADVISED BY **Conrad Sanderson**, WORK WITH **Jason Rumenagan**

Remote

Dec, 2020 - Feb, 2021

- **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

RESEARCH ASSISTANT, SUPERVISED BY **Reza Haffari** AND **Lizhen Qu**

Remote

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 in preparation.

## UNSW Sydney

CASUAL ACADEMIC/TUTOR/COURSE ADMIN

Sydney, Australia

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)
- **COMP1531**: Software Engineering Fundamentals:  
21T1
- **COMP2521**: Data Structures and Algorithms:  
21T1
- **COMP9020**: Foundations of Computer Science\* (**Graduate Course**):  
21T1(Run consultations for all 200 graduate students)
- **COMP9021**: Principles of Programming\* (**Graduate Course**):  
21T1(Run tutorials for all 250 graduate students)
- **COMP9024**: Data Structures and Algorithms\* (**Graduate Course**):  
21T1(**Course Admin**, run labs for all 200 graduate students)

## 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.

## 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.

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

## Publication

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### **PyArmadillo: an alternative approach to linear algebra in Python**

JASON RUMENGAN, **TERRY YUE ZHUO**, CONRAD SANDERSON

Technical Report, Data61/CSIRO

2021

### **Neural Symbolic Commonsense Reasoner with Relation Predictors**

SUBMITTED TO ACL 2021

ACL 2021

In Submission

### **COSMO: Conditional SEQ2SEQ-based Mixture Model for Zero-Shot Commonsense Question Answering**

FARHAD MOGHIMIFAR, LIZHEN QU, **YUE ZHUO**, MAHSA BAKTASHMOTLAGH AND GHOLAMREZA HAFFARI

COLING 2020

Oct, 2020

## Honors & Awards

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- |      |   |        |
|------|---|--------|
| 2019 | <b>Dean's Honours List (Highly Commended)</b> , Top 2% of UNSW Engineering              | Sydney |
| 2019 | <b>Taste of Research scholarships Recipient (A\$5,000)</b> , TOP 12 of UNSW Engineering | Sydney |
| 2020 | <b>Taste of Research scholarships Recipient (A\$6,000)</b> , TOP 43 of UNSW Engineering | Sydney |

## Service

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- |      |                                 |             |
|------|---------------------------------|-------------|
| 2021 | <b>Volunteer</b> , AAAI 2021    | Online      |
| 2020 | <b>Volunteer</b> , EMNLP 2020   | Online      |
| 2020 | <b>Volunteer</b> , NeurIPS 2020 | Online      |
| 2020 | <b>Volunteer</b> , WinLP 2020   | Seattle, WA |