

# QICHEN DONG

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207 Chapel Street, Salford, UK, M3 5PH

## EDUCATION

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### University of Manchester

*PhD Student in High Energy Physics*

September 2020 - September 2024

*Manchester, UK*

- Expected September 2024

### University of Manchester

*Master of Physics*

September 2018 - June 2020

*Manchester, UK*

- First Class Honours
- Overall GPA: 74.4
- Ranked 30th out of 150 students in the final year.

### Shandong University

*Bachelor of Science in Physics*

September 2015 - June 2018

*Jinan, CN*

- Overall GPA: 83.3

## RESEARCH EXPERIENCE

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### University of Manchester

*PhD student*

Sep 2020 - September 2024

*Manchester, UK*

- Supervised by Prof. Terry Wyatt FRS. Expected to submit thesis before 30th September 2024.
- Proposed, developed, implemented, and tested improved methods to identify the highly boosted pair production of the  $\tau$  leptons in the lep-had channels — the electron-removal  $\tau_{\text{had}}$  and the muon-removal  $\tau_{\text{had}}$  reconstruction.
- Algorithms went through strict scrutiny, now running in Tier-0 ATLAS data processing system. These methods have been adopted by the ATLAS collaboration as the recommended taggers for boosted  $\tau_{\text{lep}}\tau_{\text{had}}$  identification.
- The muon-removal  $\tau_{\text{had}}$  technique has been benchmarked with data, achieving a three- to four-fold improvement in the signal efficiency and signal-to-background ratio. ATLAS paper TAUP-2023-02 is in Editorial Board review.
- Single-handedly performing a search for resonant production of Higgs boson pairs in the highly boosted  $b\bar{b}\tau\tau$  channel. Paper in Preparation HDBS-2024-09.
- Member of the Run 2+3  $H \rightarrow aa \rightarrow \mu\mu\tau_\mu\tau_{\text{had}}$  analysis, which uses the muon-removal  $\tau_{\text{had}}$  reconstruction as a key ingredient.
- At least three papers are scheduled to be published for the benefit of the ATLAS collaboration, in which I will be the primary author.
- Presented the TauCP group summary talk at the ATLAS 30th birthday week, 2022, Lisbon.
- Expert reviewer for the Run 2 ATLAS  $H \rightarrow aa \rightarrow 4\tau$  analysis.

### ATLAS experiment, CERN

*Developer and Maintainer*

April 2022 - August 2022

*Geneva, CH*

- Long-term-attached PhD student.
- Developer and reviewer for Athena, the ATLAS offline software. Senior shifter in the ATLAS software merge-requests review team.

## University of Manchester

*Master Project*

September 2019 - June 2020

*Manchester, UK*

- Project supervised by Prof. Andrew Pilkington. Achieved 81%.
- Searching for extra source of CP violation with the Vector Boson Scattering (VBS) processes.
- One of the first to set preliminary limits on the Standard Model Effective Field Theory parameters in VBS processes.

## WORK EXPERIENCE

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### Qube Research and Technology

*Staffed Intern Quantitative Researcher*

August 2022 - February 2023

*London, UK*

- Salaried internship.
- Main contributor to the 10-Q and 10-K financial reports similarity analysis using NLP techniques.
- Conducted a similar project on sentiment analysis of Japanese financial reports.
- Designed and developed novel algorithms to identify abnormal data in the financial time-series.

### University of Manchester

*Teaching Assistant*

September 2020 - September 2023

*Manchester, UK*

- Demonstrator in the C++ / Python laboratories for year-2 and year-3 undergraduate physics students.
- Demonstrator in the year-3 particle physics laboratory for undergraduate students.
- Prepared a set of interactive electromagnetic field and radiation animations for the year-3 electrodynamics course. Used in the lectures and made available offline to the students to use and modify.

## ADDITIONAL EXPERIENCE

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### Remote area in Sichuan

*Volunteer Primary School Teacher*

June 2016 - September 2017

*Sichuan, CN*

- Helped primary school students who live in remote area in Sichuan province during summer break.
- The team helped hundreds of children.

### Shandong University

*Lead of Student Union*

September 2015 - June 2017

*Jinan, CN*

- Responsible for organising voluntary works hosted by the university.
- Managing a team of 20 SU undergraduate representatives.

## SKILLS AND INTERESTS

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### Programming

Proficient in programming with C/C++ and Python

### Teamwork

Strong communication skills in highly collaborative environments

### Languages

Chinese (Native), English (Professional)

### Interests

Graphic design, accelerated / distributed computing