

# Yinrui Liu

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## EDUCATION

### University of Chinese Academy of Sciences (UCAS)

Sept. 2016-Present

Bachelor of Physics (Expected 2020) GPA: 3.91/4.00 Ranking: 3/91

### University of California, Berkeley (UC Berkeley)

Jan. 2019-May 2019

Berkeley Physics International Education (BPIE) Program GPA: 4.00/4.00

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## RESEARCH EXPERIENCE

### University of Chinese Academy of Sciences (UCAS)

July 2018-Jan. 2019

**Supervisor:** Prof. Yang-Heng Zheng

**Project:** Study on different methods to measure the CKM angle  $\gamma$

- Literature research on an article newly published by LHCb collaboration
- Simulation and reconstruction of charm decays on the BES III Offline Software System (BOSS)

### University of California, Berkeley (UC Berkeley)

Feb. 2019-July 2019

**Supervisor:** Asst. Prof. Hai-Chen Wang, Prof. Yury Kolomensky

**Project:** Repeating the process to detect Higgs boson in the diphoton decay channel

- Data analysis using data from ATLAS Experiment in 2011 and 2012
- Agreement with the results in the article published by ATLAS

**Supervisor:** Prof. Yury Kolomensky

**Project:** Search for the low-mass Higgs boson with data at BaBar

- Implementation of Multi-Layer Perceptron (MLP) and Boosted Decision Tree (BDT)
- Proficient use of TMVA and RooFit library in ROOT
- GUI building for the complete analysis process
- No significant sign of the existence of low-mass Higgs boson according to the current results

## University of Manchester (UoM)

July 2019-Aug. 2019

**Supervisor:** Dr. Marco Gersabeck

**Project:** Development of a visualization tool for Dalitz analysis

- Study into the theories of isobar model for Dalitz analysis
- Visualization of the probability and phase distribution of three-body decays
- Improvement by adding more functions in the framework to study CP violation

## University of Chinese Academy of Sciences (UCAS)

Sept. 2019-Present

**Supervisor:** Assoc. Prof. Wen-Bin Qian, Prof. Xiao-Rui Lyu

**Project:** Generalized software package for partial wave analysis using GPU acceleration

- Investigation into various software packages for Partial Wave Analysis (PWA)
- Use of TensorFlow to develop a generalized software package (Work-in-progress)
- Plan of applying the package to a specific decay to test the program and complete a PWA process

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## SKILLS AND HOBBIES

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### Programming Skills

- Familiar with C, C++, ROOT (with RooFit, TMVA), Python, LaTeX, TensorFlow, MATLAB.

### Language

- Mandarin Chinese (fluent), English (advanced).

### Other Hobbies

- Sketch, graphic design, snooker, basketball.

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## QUALIFICATIONS AND AWARDS

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### Qualifications

- **GRE general:** Verbal: 155   Quantitative: 170   Writing: 3.5
- **GRE physics:** Score: 980   Percentile: 94%
- **TOEFL:** Total: 107   Reading: 29   Listening: 30   Speaking: 23   Writing: 25   (*MyBest* scores)

### Awards and Fellowships

- **UCAS Overseas Graduate Fellowships:** University of Chinese Academy of Sciences (UCAS) provides me with the tuition fees and life expenses of my first graduate year.