

# Yufan Xia

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## About Me

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I am a 23 year-old master of philosophy student.

## Education

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<b>Chinese University of Hong Kong</b> GPA: XX, Master of Philosophy in Chemistry (Expected Graduation: June 2024)	<b>2022-Present</b>
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<b>Australian National University</b> GPA: 6.63/7, Master of Computing (Advanced)	<b>2020-2022</b>
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<b>Royal Melbourne Institute of Technology</b> Bachelor of Aviation Management	<b>2018-2020</b>
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<b>Nanjing University of Aeronautics&amp;Astronautics</b> Bachelor of Aviation Management	<b>2016-2018</b>
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## Publications

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Yufan Xia, A Machine Learning Approach towards Runtime Optimization of Matrix Multiplication, **IPDPS 2023**, accepted

## Research Projects

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<b>ADSALA, Australian National University</b> Supervisor: Professor Amanda Barnard, Dr. Giuseppe Barca	<b>2021-2022</b>
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- An architecture & data-structure aware linear algebra library
- Uses ML models to decide on the best hardware/ data-structure/ package/ algorithm
- Automatic sampling & training on each hardware (mainly HPC systems)
- Current result gives over 90% performance boost on MKL multicore GEMM operations
- Next step will be on other packages on CPU and GPU as well as auto-choose over hardwares

## Course Projects

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## **2-D Advection Solver Development on Gadi HPC**

**2021-2021**

- Using block decomposition and halo exchange to parallelize advection calculation
- Uses MPI, OpenMP and CUDA as three different tools
- Uses techniques like wide halo, communication overlapping, or a combination to make faster
- Evaluates the effect of different block/ grid sizes and shared memory when on CUDA
- Update field in a back-and-forth way for each iteration, which saves the time for copying data

## **Game Solver Development**

**2020-2020**

- Given a specific starting, need to use 10 different pieces fill the board with no overlap
- Developed a recursive game solver

## **Working Experience**

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### **Department of Cloud Computing, iFlytek; Hefei, China**

**2020-2020**

- Intern as software developer of level 2, uses C++ as the main language
- Dealing with streaming audio, as well as chunks of audio & images
- Help the group to integrate user's ML abilities into the platform.

### **Institute of Computing Technology, Chinese Academy of Science; Beijing, China**

**2019-2019**

- Short term intern, worked on a portfolio composition project using pandas
- Achieved a balance between risk and revenue, adjusted dynamically using real-time data
- Good result accomplished across the groups

## **Additional**

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- Specializations: HPC and System (Core Courses: Parallel System), Intelligent System (Core Courses: Machine Learning, Convex Optimization, Statistical Machine Learning, Computer Vision)
- Relevant Courses: Structured Programming, Software Construction, Relational Database
- Programming Languages: Python, C++, Java, SQL, HTML/CSS
- Others: I have great interest in HPC, Quantum Computing and CV/VR