Haonan Bai(白浩男)

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Education

The Chinese University of Hong Kong, Hong Kong, China — September 2021 – Present

- *B.Eng.* in Artificial Intelligence - Systems and Technologies (AIST)
- Selected Courseworks: Database Systems, Cyber Security, Applied Deep Learning, Machine Learning, Operating Systems, Building Web Applications, Data Structures.
- Enrolled in ELITE Stream

University of Massachusetts Amherst, MA, US — September 2024 – December, 2024

- Exchange student, majoring in Electrical and Computer Engineering.
- Selected Courseworks: Signal Processing Methods, Fundamentals of Electrical Engineering, Complex Variables.

University of California, Berkeley, CA, US — June – August, 2022

- Summer Session Student
- Selected Courseworks: Computer Architecture, Artificial Intelligence

Work Experience

Data Scientist Internship — December 2023 – January 2024

SmartAge Intelligence Limited Supervisor - OR Yu Chung

- **Data retrieval and analysis**
  - Designed and implemented a python script to retrieve motion data from IoT devices placing in the elderly's residence, and update the data regularly to the database.
  - Designed an algorithm to consistently analysis the elderly's living pattern, provide routine reports, and alert the family members when the elderly is in abnormal status.
- **IoT device development**
  - Use low-cost IoT components to develop devices instead of using expensive commercial products.
  - Prototypes include passive infrared sensors(PIR) and radar distance sensors.

Student Helper — March – June 2023

CUHK Business School Supervisor - Prof. Chunmei Zhu

- **Data crawling**
  - Designed and implemented a web crawler with Python to collect PDFs from a database that is hard to crawl.

Research Experience

Summer Research Internship — May 2023 – September 2023

Department of Computer Sciense and Engineering Advisor - Prof. Michael R. Lyu

- **BiasPainter: Fairness Analysis of AI Image Generators** — Publication 1|Awards and Grants|
  - Proposed BiasPainter, a metamorphic testing framework that can accurately, automatically and comprehensively trigger social bias in image generation models.
  - Built an image dataset and a prompt dataset based on publicly accessible data sources, and designed a set of metamorphic relations to evaluate the bias of image generation models.
  - Evaluated the bias of mainstream image generation models, including commercial models like Stable Diffusion XL and MidJourney.

Research Assistant September 2022 – February 2023

Department of Computer Sciense and Engineering Advisor - Wenxuan Wang

- **Bias Evaluation on Open-domain Question Answering Systems** Publication 2|
  - Conducted experiments on triggering bias in question answering (QA) systems.
  - Designed a standardized algorithm to evaluate the bias of different QA models.

Research Assistant February – August 2022

Department of Computer Sciense and Engineering Advisor - Prof. Qi Dou

- **Robotic Surgery Intelligence**
  - Studied applications of deep learning in medical image analysis.
  - Annotated robot-assisted prostatectomy photos for training purpose.

Publications

1. Wenxuan Wang, **Haonan Bai**, Jen-tse Huang, Yuxuan Wan, Youliang Yuan, Haoyi Qiu, Nanyun Peng, Michael R. Lyu, "New Job, New Gender? Measuring the Social Bias in Image Generation Models", [Oral 174/4385 3.97%] ACMMM 2024.
2. Yuxuan Wan, Wenxuan Wang, Pinjia He, Jiazhen Gu, **Haonan Bai**, Michael Lyu, "BiasAsker: Measuring the Bias in Conversational AI System", ESEC/FSE 2023.

Awards and Grants

Student Activities Fund 2023-2024, Term 1 January 2024

- Granted for visiting the ESEC/FSE 2023 Conference as the paper presenter.

Best Project Award for the Undergraduate Summer Research Internship 2023 September 2023

- Awarded for the project *BiasPainter: Fairness Analysis of AI Image Generators*
- 5 awardees among 58 participants. The only awardee under AIST major

Find a Learning Opportunity Yourself (FLY) Award June 2022

- Awarded for participating in self-initiated learning abroad programmes

CUHK Scholarship for Remarkable Endeavour for Admission December 2021

- Up to 10 awardees annually, irrespective of the admission channel and residency

Skills

- Platform: Windows, Linux
- Programming Languages: Python, C/C++, Java, JavaScript
- Frameworks: TensorFlow, PyTorch (Machine Learning); React, Node.js (Web Development)
- Languages: English - Fluent, Mandarin - Native, German - Basic

Unofficial Copy. NOT to be used as certificate of academic results. Grades may be subject to amendment.

Name: BAI, Haonan
Chinese Name: 白浩男
Student ID No.: 1155173806
HKID/Passport: F090895(5)
Date of Birth: 14 Feb

Admitted in: Aug 2021
College: Chung Chi College
Faculty: Faculty of Engineering
Major/Programme: B.Eng. in Artificial Intelligence: Systems and Technologies
Mode of Study: Full-time

2021-22 Term 1

Course Code	Course Title	Units	Grade
AIST1000	Introduction to Artificial Intelligence and Machine Learning	1.0	A-
CHLT1100	University Chinese I	3.0	A
CLCC1101	Cantonese Taster Course for CUHK Mandarin-speaking Students	1.0	P
ESTR1002	Problem Solving By Programming	3.0	B+
GECC1000	College Assembly	0.0	PP
GEJC1110	College, University and Community: Student-Oriented Teaching	1.0	B
GEJC1120	College, University and Community	2.0	B+
MATH1510	Calculus for Engineers	3.0	B+
PHED1031	Tennis (Men)	1.0	A
PHYS1110	Engineering Physics: Mechanics and Thermodynamics	3.0	A-

Units Passed = 18.0 Term GPA = 3.541
Cumulative Units Passed = 18.0 Cumulative GPA = 3.541

2021-22 Term 2

Course Code	Course Title	Units	Grade
AIST2601	Technology, Society and Engineering Practice	2.0	B+
AIST2602	Engineering Practicum	1.0	P
ELTU1001	Foundation English for University Studies	4.0	A-
ENGG1130	Multivariable Calculus for Engineers	3.0	B
ESTR1005	Linear Algebra for Engineers	3.0	A
ESTR2102	Data Structures	3.0	B+
GECC1000	College Assembly	0.0	PP
PHED1025	Softball (Men)	1.0	B

Units Passed = 17.0 Term GPA = 3.456
Cumulative Units Passed = 35.0 Cumulative GPA = 3.500

2022-23 Term 1

Course Code	Course Title	Units	Grade
AIST1110	Introduction to Computing using Python	3.0	B+
CHLT1200	University Chinese II	3.0	A-
CSCI2720	Building Web Applications	3.0	B
ESTR2004	Discrete Mathematics for Engineers	3.0	B
ESTR2018	Probability for Engineers	2.0	B
GECC1000	College Assembly	0.0	PP

Units Passed = 14.0 Term GPA = 3.214
Cumulative Units Passed = 49.0 Cumulative GPA = 3.415

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2022-23 Term 2

Course Code	Course Title	Units	Grade
AIST3020	Introduction to Computer Systems	3.0	B
CSCI3320	Fundamentals of Machine Learning	3.0	B+
ELTU2005	Speaking and Presenting like TED	3.0	B+
ENGG2780	Statistics for Engineers	2.0	A-
GECC1000	College Assembly	0.0	PP

Units Passed = 11.0 Term GPA = 3.291
Cumulative Units Passed = 60.0 Cumulative GPA = 3.391

2023-24 Term 1

Course Code	Course Title	Units	Grade
CSCI3150	Introduction to Operating Systems	3.0	A-
ESTR3112	Numerical Optimization	2.0	A-
GECC1000	College Assembly	0.0	PP
GERM1000	German I	3.0	B+
UGEB2240	Natural Wonders of the World	3.0	B
UGFN1000	In Dialogue With Nature	3.0	B

Units Passed = 14.0 Term GPA = 3.314
Cumulative Units Passed = 74.0 Cumulative GPA = 3.376

2023-24 Term 2

Course Code	Course Title	Units	Grade
CSCI3170	Introduction to Database Systems	3.0	B
CSCI4130	Introduction to Cyber Security	3.0	B+
EEEN2040	Heating, Ventilation, and Air-Conditioning (HVAC) I	3.0	A-
ELTU3415	English through Food	2.0	A-
ESTR4140	Foundation of Applied Deep Learning	3.0	A-
GECC1000	College Assembly	0.0	PP
UGED1111	Logic	2.0	A-

Units Passed = 16.0 Term GPA = 3.494
Cumulative Units Passed = 90.0 Cumulative GPA = 3.398

2024-25 Term 2

Course Code	Course Title	Units	Grade
AIST3510	Human-computer Interaction	3.0	IP
ESTR4998	Graduation Thesis I	3.0	IP
ESTR4999	Graduation Thesis II	3.0	IP
GECC1000	College Assembly	0.0	IP
GECC3130	Exploration and Discovery	3.0	IP
UGEC1511	Perspectives in Economics	3.0	IP
UGFH1000	In Dialogue with Humanity	3.0	IP

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Remarks:

Given one demerit owing to disciplinary action on 23 December 2021

Six units of course(s) taken at another university recognized as equivalent

Attended University of Massachusetts Amherst, USA as exchange student in 1st Term, 2024-25 in partial fulfillment of the requirements of this degree. A complete academic record of this degree programme should include the academic transcript from the exchange university to be provided separately by the student

********** End of Transcript **********