

Zhong Xuan Khwa

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Education

Yale-NUS College

BACHELOR OF SCIENCE, WITH HONOURS

Singapore

Jul. 2016 - May 2020 (Expected)

- Majored in Mathematical, Computational & Statistical Sciences.
- Attained a Grade Point Average of 4.73 / 5.00.
- Awarded the Global Leader Scholarship in recognition of success in academics, extracurricular involvement, and leadership.

Skills

Programming Proficient: Python, R, \LaTeX . Familiar: OCaml, Elixir, Octave.

ML / AI PyTorch, Deep Graph Library, Stanford CoreNLP.

Relevant Tools Git, SQL, Google Cloud Platform.

Languages English (Native), Chinese (Conversational).

Research Experience

Research Project on Computational Geometry and Animal Behaviour, Yale-NUS College

Singapore

RESEARCH TEAM LEAD

Starting in Jan. 2020

- Will begin leading a team of 6 Research Assistants on a project on *Computational Geometric Techniques for Modelling Inherent Variability in Animal Behavior*, working with Professor Matthew Stamps and Professor Ajay Mathuru.

Linear Algebraic Techniques for Spanning Tree Enumeration

Singapore

BACHELOR'S THESIS

Aug. 2019 - Present

- Expanded on findings of the paper *Linear Algebraic Techniques for Spanning Tree Enumeration* by Matthew T. Stamps, who is also supervising the thesis, and Steven Klee.
- Improved on the applications presented in the original paper, and defined a general characterization for graphs with a triangular rank-1 augmented Laplacian matrix.
- Designed Python script for computational investigation on graphs that work well with the proposed method.

CopeNLU, University of Copenhagen

Copenhagen, Denmark

RESEARCH INTERN

May 2019 - Jul. 2019

- Pioneered exploratory project investigating *Zero-shot Relation Extraction with Graph Neural Networks*, with Professor Isabelle Augenstein, Selvan Raghavendra, and Johannes Bjerva.
- Developed and applied method for linking entities in existing zero-shot relation extraction dataset (Levy et al. 2018) to WikiData entries.
- Implemented a Graph Neural Network initialized with BERT embeddings of sentences (for edges) and node labels to predict unseen relations in a zero-shot setting.

Technical and Industry Experience

Residential Housing, Yale-NUS College Dean of Student's Office

Singapore

STUDENT ASSOCIATE

Aug. 2019 - Present

- Researched and prototyped automated method for allocating housing for first-year students and exchange students, who make up 30% of total annual enrollment.
- Modified Python implementation of Roth-Peranson algorithm to address the first-year housing problem in Yale-NUS College.
- Developed Python package for housing allocation which integrates into existing work-flow.

The Stakeholder Company

Singapore

SUMMER ASSOCIATE, BUSINESS SYSTEM ANALYST - PROFESSIONAL SERVICES TEAM

May 2018 - Jul. 2018

- Built and pitched demo system for 6 figure deals with Google, UPS, Raffles Medical, and ExxonMobil.
- Fine tuned news monitoring systems in 10 local languages for Coca-Cola in ASEAN.
- Wrote SQL Scripts to optimise backend workflows including database search, result scoring, and short path finding.

SumoStory

Singapore

SUMMER INTERN

Jun. 2017 - Aug. 2017

- Built journalist profiling tool that determined journalist profile by applying topic modeling techniques to web-scraped articles written by the journalist.
- Designed internal journalist database, allowing for fast information retrieval, customer matching, and data entry.

Teaching Experience

Yale-NUS College Peer Tutor Program

PEER TUTOR (QUANTITATIVE REASONING, PROOF, PROBABILITY AND STATISTICS)

Singapore

Aug. 2017 - Apr. 2019

- Taught and led over 100 hours of individual and group peer tutoring sessions.
- Communicated difficult mathematical concepts effectively to students from diverse academic backgrounds.

Leadership Experience

Yale-NUS College Residential College Advisor Program

RESIDENTIAL COLLEGE ADVISOR

Singapore

May 2019 - Present

- Provided extensive support for 10 local and international first-year students through academic issues, personal wellness, and crisis situations.
- Trained in conflict management and mediation, facilitating productive dialogue in diverse groups, and identity-based intersectional support.

Yale-NUS Brewhouse: A Coffee Project

CO-MANAGER / TRAINING HEAD

Singapore

Jan. 2017 - Present

- Managed the operations and upkeep of the college's volunteer-run mobile cafe with a team of 31 student baristas.
- Improved operational workflow of the cart, including intuitive Google sheets order tracker for cashier use.

Tours and Outreach Team, Yale-NUS College Admissions Office

SENIOR STUDENT ASSOCIATE / TOUR GUIDE

Singapore

Aug. 2016 - Present

- Co-managed a team of 32 Student Associates for the Admissions Office.
- Conducted training, processed timesheets, and planned professional development opportunities for student tour guides.
- Represented the college in various university fairs and outreach sessions, with audiences ranging from prospective students to university counselors.

Yale-NUS Ballroom Society

CAPTAIN / ADVANCED TRAINING DIRECTOR

Singapore

Jan. 2019 - Nov. 2019

- Led the biggest active student organization in Yale-NUS College, with 67 members.
- Awarded "Best Student Organization" in the Kingfisher Awards 2019, an award ceremony organized by Yale-NUS College's Dean of Student's Office to recognise excellence in student organisations.
- Designed and executed training programs for both beginner and advanced dancers.

Yale-NUS College Student Government

CLASS OF 2020 REPRESENTATIVE

Singapore

Jan. 2019 - Aug. 2019

- Represented the Class of 2020 in weekly senate meetings, advocating for topics such as attendance policies and student welfare.
- Proposed and passed senate resolution to establish a campus data office to better manage how the school handles student data and survey results.

Community for Advocacy and Political Education (CAPE)

TREASURER / FOUNDING MEMBER

Singapore

Jan. 2017 - May 2018

- Built foundation for CAPE with students from Yale-NUS College and NUS Law.
- Designed workshops and online resources to increase political literacy and engagement amongst Singaporean youths.

RC³ (Yale-NUS College's Inter- and Intra-Residential College Event Co-ordinators)

CO-PRESIDENT

Singapore

Jan. 2017 - May 2018

- Organised school-wide events for the college with the purpose of building the school community.
- Pioneered and aided in the transition of the Events Committee under the Dean of Student's Office, which has taken over the responsibility of event coordination.

Intercultural Peer Advisor Program, Yale-NUS College

INTERCULTURAL PEER ADVISOR

Singapore

Nov. 2016 - May 2017

- Participated in social justice and cross-cultural communication training.
- Implemented projects with the Dean of Student's Office that address discrimination and inter-group tension across campus.

References

Matthew Terence Stamps

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