

EDUCATION

- **The Hong Kong Polytechnic University (PolyU)** Hong Kong
Bachelor of Science in Computing (First Honor) Aug. 2014 - Jun. 2018
 - GPA: 3.68/4; Major GPA: 3.79/4; Semester GPAs since the third year: 4/4
 - Selected subjects: Comp. Networking (A), HCI (A), Multimedia (A+), Big Data Analytics (A), Comp. Org. (A), Algorithms (A), Software Engineering (A), AI (A+), Mobile Computing (A), Web Dev. (A), Capstone Project(A+)
- **University of Maryland (UMD)** College Park, MD, USA
Exchange Student Aug. - Dec. 2016
 - Selected subjects: Intro to Data Science (A+), Organization of Programming Languages

PUBLICATIONS & MANUSCRIPTS

- Y. Long*, M. Ma*, Q. Lu, R. Xiang, C.R. Huang. Dual Memory Network Model for Biased Product Review Classification. To appear in *9th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis on EMNLP 2018*. (*: Equal contribution) [PDF]
- L. Xu, M. Ma, J. Cao, X. Wei, K. Yamanishi. cate2vec: Learning Numerical Representations of Categorical Symbols by Adversarially Encoding Attribute Associations. Submitted to *AAAI 2018*.
- S. Jiang, J. Cao, H. Wu, Y. Yang, M. Ma, J. He. BlochIE: a BLOcKchain-based platform for Healthcare Information Exchange. In *Processings of the IEEE Intl. Conference on Smart Computing 2018*. [PDF]

RESEARCH EXPERIENCE

- **PolyU Dept. of Computing Chinese Computing Lab** Hong Kong
Capstone Project Student to [Prof. Qin Lu \(Interim Head of PolyU Computing\)](#) Sep. 2017 - Jun. 2018
Dual Memory Network Model for Biased Product Review Classification derek.ma/proj/dupmn
 - Designed a dual memory network model for sentiment analysis utilizing related documents of corresponding users and products; constructed hierarchical LSTM networks to obtain document embeddings
 - Reflected reviews from users' and products' perspective by setting up corresponding external memory mechanism
 - Implemented LSTM networks and memory networks using TensorFlow
 - Evaluation on Yelp and IMDB datasets shows our model achieves the state-of-the-art accuracy, MAE and RMSE
 - Paper published in WASSA, a workshop of EMNLP 2018
- **Uni. of California Santa Cruz Natural Language and Dialogue Systems Lab** Santa Cruz, CA, USA
Research Intern to [Prof. Marilyn Walker \(ACL Fellow\)](#) Jun. 2018 - Present
Hierarchical Reinforcement Learning Utilizing Discourse Relation for Social Media Data Retrieval
 - Designing hierarchical RL algorithm with a top-level discourse relation classification policy and low-level retrieval policies for corresponding relations for social media data retrieval in open-domain dialogue systems
 - The discourse relations classifier is heuristic feature-based according to definitions in Penn Treebank dataset
 - Crowd-coursing user interaction with the system and user labelled data on MTurk**Noun and Phrase Actor Disambiguation for SlugBot in Amazon Alexa Prize**
 - Disambiguated common noun or phrase to provide better response for generic user utterances
 - Utilized word vectors (GloVe and ELMo), wordnet and verbnet to match noun or phrase to limited topics
- **PolyU Dept. of Computing Internet and Mobile Computing Lab** Hong Kong
Student Assistant to [Chair Prof. Jiannong Cao \(IEEE Fellow, ACM Distinguished Member\)](#) Jan. 2017 - Jun. 2018
Learning Representations of Categorical Symbols by Adversarially Encoding Attribute Associations
 - Developed an adversarial learning algorithm to learn distributed embedding for categorical symbols in data mining task; the model includes a discriminator, a generator and the optimization algorithm
 - Implemented the algorithm in Python and evaluated the performance in terms of classification task on UCI ML repository, the model achieves better accuracy than other state-of-the-art embedding methods**Blockchain-based Layered-federation Distributed Data Sharing Platform for Huawei Inc.** derek.ma/proj/ai3
 - As lead developer constructed Blockchain system from scratch to do data publishing, sharing and requesting tasks
 - Used Django and gRPC to realize blocks packing and tracking scheme, validated patents
 - Designed and implemented encryption, P2P network, file transfer protocol and UI
- **Massachusetts Institute of Technology Geospatial Data Center (MIT GDC)** Cambridge, MA, USA
Research Intern to [Dr. Abel Sanchez](#) and [Prof. John R. Williams](#) Jul. - Aug. 2017
A Learning and Grading Solution for Engineering Computation Education derek.ma/proj/onexi
 - Designed a solution to optimize learning and grading flow for in-class programming course and online MOOC
 - Developed a Visual Studio Code extension, a grading API and a web portal based on GitHub functionalities
 - The system developed has been deployed in class in spring semester of 2018 at MIT 1.00 course (onexi.org)

WORK EXPERIENCE

- **SOHU.com** (a NASDAQ listing Chinese online Internet company) Shanghai, China
Front-end Web Development Intern *Jun. - Jul. 2016*
 - Delivered 5 advertisement websites for online promotion and product introduction using HTML5 and JavaScript

PROJECTS

- **Sense+ Computer Vision Application for the Visually Impaired** Hong Kong; *Feb. 2017 - May 2018*
Mentor: **Dr Henry Chun Bun Chan** (Associate Head of PolyU Computing) derek.ma/proj/senseplus
 - Developed a progressive web app to recognize people, explore the surroundings, and search personal belongings
 - Developed object detection model on TensorFlow, used Microsoft Cognitive Services and Microsoft LUIS
 - Won Champion of the region in Microsoft Imagine Cup, and Silver Award in Hong Kong ICT Award
 - Collaborated with the Hong Kong Blind Union and tested on real users; covered by media like CCTV, ViuTV etc.
- **“Tech For Development” Carbon Neutral Learning Center** Kampong Speu, Cambodia; *Jun. 2017*
A solar powered library for local primary school using second-hand container derek.ma/proj/tech4d
 - Designed and implemented solar panel electricity system and ventilating system; it's the first library in that area
 - Worked with local NGO: Young People Do Cambodia; all facilities have successfully run for more than 16 months
- **Rwanda Service-Learning Project on Power Supply by Solar Systems** Kigali, Rwanda; *May. 2015*
A power supply project for areas without electricity using green energy derek.ma/proj/rwanda
 - Designed and produced solar system models; prepared and held technology workshops with teammates
 - Installed 45 solar systems in a week for several villages without electricity; collaborated with local NGO

HONORS, AWARDS & SCHOLARSHIPS

- **Microsoft Imagine Cup 2017:** Champion and Most Innovative Award, Hong Kong SAR *Jul. 2017*
 - Top 1 among all 35 teams in the region; global top 32 of all teams from 32 countries or regions
- **Hong Kong ICT Award Student Innovation Award (Tertiary or Above):** Silver Award *Mar. 2018*
- **Best Capstone Project Competition:** Outstanding Project Award (Top 1 in the dept., 1/100) *Jun. 2018*
- **Hong Kong Techathon:** Winner (10/150) *Jan. 2018*
- **PolyU Smart Computing Competition:** Champion *Apr. 2017*
- **Youth Volunteer Service Conference:** Best Creative Service Project (Top 1 in the Greater China) *Nov. 2017*
- **Selected Scholarships**
 - Commercial Radio 50th Anniversary Scholarship: (Only 1 in the dept., 1/400) *Oct. 2016*
 - CMA (The Chinese Manufacturers' Association of Hong Kong) & Donors Scholarship 2017/18: (3/400) *Jan. 2018*
 - Hong Kong Government Scholarship Fund Talent Development Scholarship *May 2018*
 - Wong Tit-Shing Student Exchange Scholarship *Apr. 2016*

ACTIVITIES

- **InnoCarnival organised by Hong Kong Government IT Commission:** Invited Showcase *Oct. 2017*
- **PolyU Computer App Programming (CAP) Contest 2017:** Examiner *Nov. 2017*
- **2016 Summer Olympic Games in Rio de Janeiro, Brazil:** International Volunteer *Aug. 2016*
- **Marketing Team, PolyU Dept. of Computing:** Designer *Nov. 2015 - May 2016*
- **PolyU Chinese Mainland Students' Association:** Internal Vice President *Apr. 2015 - Apr. 2016*

SKILLS

- **Programming Languages:** Python, Java, R, JavaScript, Node.js
- **Machine Learning and Natural Language Processing:** TensorFlow, Sentiment Analysis, Memory Network, Dialogue Systems, Reinforcement Learning, Discourse Relation, Crowdsourcing on MTurk
- **Web Applications Development:** Django, Java Servlet, JSP, HTML, CSS, Web Components, PWA
- **OSs and Platforms:** macOS, Linux, Google Cloud, AWS, Firebase

NATURAL LANGUAGES

English (professional working proficiency), Mandarin (native), and Cantonese (basic)