Yaqian ZHANG

CONTACT

(+65) 9037-5290 *or* (+86) 188-1821-2754
✉ yzhang117@e.ntu.edu.sg
https://yaqianzhang.github.io/

EDUCATION

Nanyang Technological University (NTU), Singapore — Aug 2015 – Feb 2020 (Expected)
Ph.D. in Computer Science (GPA: 4.83/5)
Thesis: *Understanding and improving interactive systems design with machine learning*

Shanghai Jiao Tong University (SJTU), Shanghai, China — Sep 2011 – Jun 2015
B.Eng. in Information Engineering (GPA: 4.53/5)
Thesis: *SSIM-inspired rain removal with quaternion sparse representation*

RESEARCH TOPICS

Reinforcement Learning: Developing efficient algorithms for decision-making in practical problems

Statistical Data Modeling: Understanding users' behavior with statistical learning

Human Computer Interaction: Personalizing interactive experience in dynamic systems

SELECTED PUBLICATIONS

Yaqian Zhang, Wooi-Boon Goh, Bootstrapped policy gradient for difficulty adaptation in intelligent tutoring systems. *In Proc. of the 18th International Conference on Autonomous Agents and Multiagent Systems* (AAMAS 2019 oral), Montreal, Canada, May 1317, 2019. (Acceptance rate = 24.2%)

Yaqian Zhang, Wooi-Boon Goh, The influence of peer accountability on attention during gameplay. *Computers in Human Behavior*, 84 (2018): 18-28. (Impact factor = 4.3)

Yaqian Zhang, Jacek Mańdziuk, Chai Hiok Quek, Wooi-Boon Goh, Curvature-based method for determining the number of clusters. *Information Sciences*, 415 (2017): 414-428. (Impact factor = 5.5)

Yaqian Zhang, Wooi-Boon Goh, Reinforcement learning-based adaptive task difficulty personalization. *User Modeling and User-Adapted Interaction*. (Impact factor = 3.4) (*To be submitted.*)

RESEARCH PROJECTS

Reinforcement learning for dynamic difficulty adaptation — Aug 2017 – Aug 2019, NTU

- Proposed to bootstrap policy gradient with better/worse actions to increase its sample efficiency;
- Provided theoretical guarantee for unbiased convergence;
- Designed and developed an online visual memory game platform;
- Proposed a reinforcement learning-based algorithm for difficulty adaptation in a real-world application;

Curvature-based method for determining the number of clusters — Aug 2015 – Aug 2017, NTU

- Proposed a new method to determine the cluster number by exploiting the curvature information;
- Improved prediction accuracy by 10.0% in the experiment of 20 real-world data sets;
- Outperformed existing approaches in challenging datasets with hierarchical or intermixed clusters.

Understanding cooperative and competitive gameplay — Aug 2015 – Aug 2017, NTU

- Designed and developed a multi-player tablet game using Unity3D;
- Conducted a user study with 40 subjects to investigate the effects of peer accountability on attention.

Development of a search engine for information retrieval Aug 2015 – May 2016, NTU

- Designed and implemented a searching application on DBLP XML dataset using Lucene, which supports the search of similar publications' venue;
- Achieved a precision of 0.91 in binary assessment (Kappa agreement between two judgments is 0.7);
- Proposed a new measurement to evaluate the level of similarity returned by the search engine based on the Jaccard coefficient of neighbor sets.

SSIM-inspired rain removal with quaternion sparse representation Mar 2014 – Jun 2015, SJTU

- Proposed the definition of structural similarity (SSIM) index in quaternion domain;
- Devised SSIM-inspired quaternion sparse representation algorithm for rain removal;
- Achieved improvements of 3.6 dB in PSNR and 0.11 in SSIM compared with previous methods.

AWARDS & HONORS

AAMAS Student Travel Award	2018 – 2019
NTU Research Scholarship	2015 – 2019
NTU MAGIC Game Design Challenge (3^{rd} prize Winner)	2015 – 2016
Pan Wen-Yuan Scholarship (top 3%)	2011 – 2012
SJTU Academic Excellence Scholarship	2011 – 2012
Merit Student Honor in Shanghai Jiao Tong University (top 3%)	2011 – 2012

SKILLS

Extensive experience with Python and TensorFlow
Intermediate experience with C/C++, Matlab, PyTorch
Familiar with Unity3D, PHP, JavaScript, HTML/CSS, MySQL

LANGUAGES

English (Professional Proficiency), Mandarin (Native Proficiency),

SERVICE

Reviewer 2016 – 2019
Information Sciences
Science China Information Sciences
ICONIP 2019: International Conference on Neural Information Processing
IScIDE 2019: International Conference on Intelligence Science and Big Data Engineering

Teaching Assistant 2016 – 2018
CE/CZ3004 Multidisciplinary Design Project (MDP), NTU

Residential Mentor 2018 – 2019
Organized residential education activities for Hall 15, NTU

PRESENTATIONS

Bootstrapped policy gradient for difficulty adaptation in intelligent tutoring systems. May 2019
AAMAS 2019, Montreal, Canada

MAGIC game design challenge pitch: leap-motion based game design Dec 2016
Multi-plAtform Game Innovation Centre (MAGIC), NTU