

# Yaqian ZHANG

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CONTACT	<p>☎ (+65) 9037-5290 or (+86) 188-1821-2754 ✉ yzhang117@e.ntu.edu.sg 🌐 <a href="https://yaqianzhang.github.io/">https://yaqianzhang.github.io/</a></p>	
EDUCATION	<p><b>Nanyang Technological University (NTU)</b>, Singapore Ph.D. in Computer Science (GPA: 4.83/5) Thesis: <i>Understanding and improving interactive systems design with machine learning</i></p> <p><b>Shanghai Jiao Tong University (SJTU)</b>, Shanghai, China B.Eng. in Information Engineering (GPA: 4.53/5) Thesis: <i>SSIM-inspired rain removal with quaternion sparse representation</i></p>	<p>Aug 2015 – Nov 2019 (Expected)</p> <p>Sep 2011 – Jun 2015</p>
RESEARCH TOPICS	<p><i>Reinforcement Learning</i>: Developing sample efficient RL algorithms for real-world applications <i>Statistical Data Modeling</i>: Understanding users' behavior with statistical learning <i>Human Computer Interaction</i>: Personalizing interactive experience in dynamic systems</p>	
SELECTED PUBLICATIONS	<p><b>Yaqian Zhang</b>, Wooi-Boon Goh, Bootstrapped policy gradient for difficulty adaptation in intelligent tutoring systems. <i>In Proc. of the 18th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2019 oral)</i>, Montreal, Canada, May 1317, 2019. (Acceptance rate = 24.2%)</p> <p><b>Yaqian Zhang</b>, Wooi-Boon Goh, The influence of peer accountability on attention during gameplay. <i>Computers in Human Behavior</i>, 84 (2018): 18-28. (Impact factor = 4.3)</p> <p><b>Yaqian Zhang</b>, Jacek Mańdziuk, Chai Hiok Quek, Wooi-Boon Goh, Curvature-based method for determining the number of clusters. <i>Information Sciences</i>, 415 (2017): 414-428. (Impact factor = 5.5)</p> <p><b>Yaqian Zhang</b>, Wooi-Boon Goh, Reinforcement learning-based adaptive task difficulty personalization. <i>User Modeling and User-Adapted Interaction</i>. (Impact factor = 3.4) (<i>To be submitted.</i>)</p> <p>Enmei Tu, <b>Yaqian Zhang</b>, Lin Zhu, Jie Yang, Nikola Kasabov, A graph-based semi-supervised k nearest-neighbor method for nonlinear manifold distributed data classification. <i>Information Sciences</i> 367-368 (2016): 673-688. (Impact factor = 5.5)</p> <p>Enmei Tu, Jie Yang, Nikola Kasabov, <b>Yaqian Zhang</b>, Posterior Distribution Learning (PDL): A novel supervised learning framework using unlabeled samples to improve classification performance. <i>Neuro-computing</i> 157 (2015): 173-186. (Impact factor = 4.1)</p>	
RESEARCH PROJECTS	<p><b>Reinforcement learning for dynamic difficulty adaptation</b></p> <ul style="list-style-type: none"><li>• Proposed to bootstrap policy gradient with better/worse actions to increase its sample efficiency;</li><li>• Provided theoretical guarantee for unbiased convergence;</li><li>• Designed and developed an online visual memory game platform;</li><li>• Proposed a reinforcement learning-based algorithm for difficulty adaptation in a real-world application.</li></ul> <p><b>Curvature-based method for determining the number of clusters</b></p> <ul style="list-style-type: none"><li>• Proposed a new method to determine the cluster number by exploiting the curvature information;</li><li>• Improved prediction accuracy by 10.0% in the experiment of 20 real-world data sets;</li><li>• Outperformed existing approaches in challenging datasets with hierarchical structure or intermix clusters.</li></ul>	<p>Aug 2017 – Aug 2019, NTU</p> <p>Aug 2015 – Aug 2017, NTU</p>

**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 <sup>rd</sup> prize Winner )	2015 – 2016
	Pan Wen-Yuan Scholarship (top 3%)	2011 – 2012
	SJTU Academic Excellence Scholarship (top 5%)	2011 – 2012
	Merit Student Honor in Shanghai Jiao Tong University (3%)	2011 – 2012
SKILLS	Extensive experience with Python and TensorFlow Intermediate experience with C/C++, Matlab, PyTorch	
LANGUAGES	Chinese (Native), English (Proficient, TOEFL 108)	
SERVICE	<b>Reviewer</b>	2016 – 2019
	Information Sciences	
	ICONIP 2019: International Conference on Neural Information Processing	
	IScIDE 2019: International Conference on Intelligence Science and Big Data Engineering	
	<b>Teaching Assistant</b>	2016 – 2018
	CE/CZ3004 Multidisciplinary Design Project (MDP), NTU	
PRESENTATIONS	<b>Residential Mentor</b>	2018 – 2019
	Organized residential education activities for Hall 15, NTU	
	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	