

# Weirui Kong

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## EDUCATION

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Sept 2017 – Aug 2019	<b>University of British Columbia</b>	Master of Science in Computer Science GPA: 93.8/100 (A+)
Sept 2013 – June 2017	<b>Zhejiang University</b>	Bachelor of Engineering in Computer Science GPA: 87.72/100 (3.86/4.0)

## WORK EXPERIENCE

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Sept 2017 – Present	<b>University of British Columbia</b>	Research and Teaching Assistant <ul style="list-style-type: none"><li>• Teaching assistant for <i>Data Structures and Algorithms</i> and <i>Introduction to Relational Databases</i>.</li><li>• Research in Natural Language Processing group.</li></ul>
July 2016 – Sept 2016	<b>University of Waterloo</b>	Mitacs Globalink Summer Internship <ul style="list-style-type: none"><li>• Developed an iOS app implementing simulations for three investment strategies.</li><li>• Implemented option pricing, stock information query and simulation result visualization.</li></ul>

## RESEARCH PROJECT

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Sept 2018 – Aug 2019	<b>Predicting Dementia from Language</b>	supervised by Prof. Giuseppe Carenini <ul style="list-style-type: none"><li>• Explored neural models for predicting dementia from Language.</li><li>• Paper accepted as proceedings of the Machine Learning for Healthcare Conference 2019.</li></ul>
Dec 2015 – Apr 2016	<b>The Recognition of CNY (Chinese yuan, currency used in China) Serial Number</b>	<ul style="list-style-type: none"><li>• Implemented an algorithm to select an optimal threshold from gray levels for picture segmentation.</li><li>• Implemented a parallel algorithm for thinning the segmented pictures.</li><li>• Using thinned pictures as training set for BP neural network, the image of serial number could be recognized with high precision (99%).</li></ul>

## GRADUATE COURSE PROJECT

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April 2018	<b>Chinese Character Generation</b> , Machine Learning <ul style="list-style-type: none"><li>• Preprocessed a Chinese handwritten character dataset, obtaining the bitmap of each character and the corresponding GBK encoding.</li><li>• Implemented three different generative models (one GAN-based model, one VAE-based model and one hybrid model consisting of VAE and GAN) to generate Chinese characters conditioned on their GBK encodings.</li></ul>
Mar 2018	<b>A Distribution Similarity Based Regularizer for Learning Bayesian Networks</b> , Graphical Models <ul style="list-style-type: none"><li>• Used parameter sharing and multi-task learning to encourage similar factors.</li><li>• Proposed a novel regularization term by penalizing the distribution distance over factors.</li><li>• Evaluated different models on approximating the perturbations of wave propagation in inhomogeneous materials.</li></ul>
Feb 2018	<b>Semi-supervised Image Captioning via Reconstruction</b> , Multimodal Learning with Vision and Language <ul style="list-style-type: none"><li>• Attempted to tackle the task of generating image descriptions without {image, ground-truth caption} pair.</li><li>• Built a mapping between image feature and the generated caption feature. Then proposed a reconstruction loss between the original image feature and the reconstructed one to train the model in a semi-supervised way.</li><li>• Using Gumbel Softmax to address the discrete issue of sampling from vocabulary distribution.</li></ul>
Nov 2017	<b>Robocode Tank Learning System</b> , Architectures for Learning Systems <ul style="list-style-type: none"><li>• Developed the controller of robocode tank using neural net and Q learning.</li><li>• Implemented the SARSA (on policy) version of the controller system and compared it with Q learning (off policy).</li><li>• Using experience replay to enhance learning performance.</li></ul>

## REPRESENTATIVE HONORS

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2018	Mitacs Globalink Graduate Fellowship
2017	Outstanding Graduates of Zhejiang University
2016	Mitacs Globalink Research Internship Award
2015	Merit Student of Zhejiang University (top 5%)

## SKILLS

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- Python, Julia, Java, Swift and C
- Scikit-learn, PyTorch and Keras
- Basic C++, HTML, JavaScript, PHP and Assembly Language (MIPS)