

Suikei (Ruiqi) Wang

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Education

The Australian National University, Canberra, Australia February 2019 — December 2020

Master of Machine Learning and Computer Vision | **GPA:** 6.357/7 (Distinction)

Thesis: Multiple Constraints and Non-regular Solutions in Deep Declarative Network

Beijing Normal University, Zhuhai Campus, Zhuhai, China September 2015 — June 2018

Bachelor of Engineering in Digital Media Technology | **GPA:** 3.61/4 (Top 3%, finished 4-years program in 3 years)

Thesis: Development of Interface based on RESTful API and RBAC System

Skills

Programming: Python, MATLAB, C++, Java, SQL

Technologies: PyTorch, Numpy, SciPy, Autograd, OpenCV, Qt, Git, AWS

Languages: Cantonese, Mandarin, English

Related Experience

Visiting Scientist November 2020 — Present

CSIRO's Data61, Black Mountain, Canberra, Australia

Supervisor: Dr David Ahmedt-Aristizabal

- Demonstrated the baseline of the cervical cell images classification based on promising CNN models
- Applying graph convolutional network (GCN) on cervical cell images for classification

Academic Tutor July 2020 — November 2020

Research School of Computer Science, ANU, Canberra, Australia

Manager: Prof. Patrik Haslum / Dr Liang Zheng

- COMP1730/6730 Programming for Scientist; COMP3670/6670 Introduction to Machine Learning
- Hosted tutorial weekly, marked assignments and the final exam, arranged Q&A on Piazza

Research Assistant February 2020 — November 2020

Research School of Computer Science, ANU, Canberra, Australia

Supervisor: Prof. Stephen Gould | Project paper: arXiv:1909.04866 | <https://github.com/anucvml/ddn>

- Developed multiple equality and inequality constraints optimization structure and the calculation of gradient in deep declarative nodes based on raw Python with various examples
- Exploring the non-regular solution of different constraints in deep declarative nodes like overdetermined system, rank deficient and non-convex cases, which are not able to calculate the gradient directly
- Finding the gradient in non-regular solutions: approximate the heuristic solution based on the Least-Squared method and orthogonal matching pursuit algorithm; calculate the exact solution through non-linear Lagrangian

Summer Research Assistant November 2019 — February 2020

Research School of Computer Science, ANU, Canberra, Australia

Supervisor: Dr Charles Martin

- Generated fake piano music based on MAESTRO dataset using GANSynth in PyTorch framework
- Converted real and fake MIDI music into spectrograms, as the input of the binary classifier based on CNN and LSTM, which can discriminate real and fake music (more precise than the discriminator in GANSynth)

Selected Projects <https://github.com/suikei-wong>

Human Face Completion, ANU, Australia July 2020 — Oct 2020

- Built a GAN model which can recover facial images based on a large-scale dataset (Celeb-A)
- Designed the algorithm based on probabilistic model which is able to generate multiple results for the same input
- Modified the model with feature map in decoder layers to synthesize particular style from another input image

Facial Attributes Classification, ANU, Australia August 2019 — November 2019

- Built a deep learning model based on ResNet18 and linear classifier for facial attributes classification based on Celeb-A dataset as the baseline with an accuracy of 90.91%
- Developed a depthwise separable CNN MobileNet, and modified the window size which reduces the size of the network with only 37MB and improves the accuracy to 91.12%