Suikei (Ruiqi) Wang

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Education

The Australian National University *Feb 2019 — Dec 2020*

Master of Machine Learning and Computer Vision

GPA: 6.0/7.0 (Distinction)

Related Courses: Computer Vision, Advanced Topic in Computer Vision, Statistical Machine Learning, Matrix Computation, Engineering Data Analysis

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

Beijing Normal University, Zhuhai Campus *Sep 2015 — Jun 2018*

Bachelor of Engineering in Digital Media Technology

GPA: 3.61/4 (Top 3%, finished 4-years degree in 3 years)

Related Courses: Digital Image Processing, Computer Graphics, Mathematical Model, Engineering Mathematics

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

Peking University *Jul 2018 — Aug 2018*

Summer School, Self-Driving Car Technology

GPA: 90/100

Skills

Programming: Python, MATLAB, C++, Java

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

Languages: Cantonese, Mandarin, English

Academic Experience

Visiting Scientist (Full-time) *Nov 2020 — Present*

CSIRO'S Data61, Black Mountain, Canberra, Australia

Manager: Dr David Ahmedt-Aristizabal

- Applying GCNN in the knee osteoarthritis prediction task from both X-Rays and MRIs

Academic Tutor (Casual) *Jul 2020 — Nov 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 (Casual) *Feb 2020 — Nov 2020*
Research School of Computer Science, ANU, Canberra, Australia
Supervisor: Prof. Stephen Gould | Project paper: arXiv:1909.04866

- Developed multiple equality and inequality constraints optimization structure and the calculation of gradient in deep declarative nodes in raw Python with different examples.
- Exploring the non-regular solution of different constraints in deep declarative nodes like overdetermined, 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 (Full-time) *Nov 2019 — Feb 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 (CNN for feature extraction of each frame and LSTM for music sequence processing), which can discriminate real and fake music (more precise than the discriminator in GANSynth).

Professional Experience

ANU Officer (Casual) *Nov 2019 — Jan 2020 / Jun 2020 — Jul 2020*
Engagement and Success Office, ANU, Canberra, Australia
Manager: Mr Sam Cheah

- Developed software for SET4ANU matching mentors and mentees automatically using Qt based on C++.
- Upgraded the algorithm to handle group multiple mentors and mentees through their interests and special requests.

Project Manager/Developer (Casual) *Dec 2015 — Apr 2018*
Information and Technology College, BNUZ, Zhuhai, China
Supervisor: Prof. Bo Lang, Mr Yueying Xu

- Worked as a backend developer, involved in multiple large business development projects with Macau SAR Government and BNUZ including China-Portuguese Speaking Countries Cooperation and Development Platform, Online Education Resource and Teaching System.
- Responsible for the project functions confirmation and developing period with Party-A, the Macau SAR Government, held weekly meetings with managers.
- Evaluated the workload for the team, assigned tasks to team members and offered systematic weekly training sessions.

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

Human Face Completion *Jul 2020 — Oct 2020*

Course project for ENGN8501: Advanced Topics in Computer Vision

- Built a GAN model which can recover destroyed 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 which can synthesize particular style from another facial input image.

CT Lesion Detection *Jun 2020 — Aug 2020*

- Built U-Net as the baseline on DeepLesion dataset for CT lesion detection with a bounding box in PyTorch.
- Improving the performance of the model through dense masks and weak labels based on RetinaNet.

Facial Attributes Classification *Aug 2019 — Nov 2019*

Course project for ENGN8536: Advanced Topics in Mechatronics Systems

- 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%.

Reduction of Fish-Eye Lens Distortion *Feb 2019 — Jun 2019*

Course project for ENGN6528: Computer Vision

- Designed an algorithm based on the Panini projection, a rectilinear perspective projection method, applying horizontal angle compression while rendering vertical and radial lines straight for Surveillance dataset.
- For image with field of view of over 180◦ and even higher than the theoretical limit of rectilinear projection in the view angle, this method can eliminate visual distortions effectively.

Leadership & Awards

PARSA CECS Officer (Coursework) (Casual) *Oct 2020 — Present*

The ANU Postgraduate and Research Students' Association, Canberra, Australia

- Responsible for supporting and advocating for students in CECS.
- Provide regular reports on efforts to improve the lives of members and provide opportunities to be held accountable for the progress of this work.
- Support and promote PARSA activities which support the goals of the Strategic Plan including but not limited to O-Week and Welcome Week, face-to-face and

social media engagement, membership engagement and feedback, and Students' Association-led events.

Bruce Hall Senior Resident, ANU (Part-time) *Nov 2019 — Feb 2020*
Bruce Hall, ANU, Canberra, Australia

- Responsible for the safety and activity of residents during the summer break.
- Arranged a detailed plan for bushfire evacuation.

Team Leader, BNUZ (Casual) *Dec 2015 — Apr 2018*
Digital Media Lab, BNUZ, Zhuhai, China

- Gave multiple talks and lectures for college freshmen about the professional project team, reviewed applications and set up the weekly training plan.
- Developed the management rules for the team and arranged team members of projects (different schedules for different projects).

Bruce Hall Residential Scholarship 2019
Excellent Graduate, BNUZ 2018
Outstanding Bachelor Thesis, BNUZ 2018
College Merit Scholarship, BNUZ 2018
Student of the Year, BNUZ 2017
National Data Mining Competition, Third Prize 2017
College Merit Scholarship, BNUZ 2017
College Merit Scholarship, BNUZ 2016