

# Ruikai Cui

## Curriculum Vitae



26 Barry Drive, Canberra ACT 2601  
(+61) 0434 723 596  
ruikai.cui@anu.edu.au  
ruikai.ink

## EDUCATION

- 2019 – NOW **BEng in Advanced Computing**  
GPA: 7.0/7.0 (Top 3%)  
*Australian National University*
- 2017 – 2019 **BEng in Computer Science and Technology**  
GPA: 90.2/100 (Top 1)  
*Shandong University (Weihai)*

## EXPERIENCE

Australian National University  
**Student Researcher**

Field of Research:

- Deep Declarative Networks & Differentiable Optimization Layers
- Probabilistic Graphical Models
- Explore end-to-end methods for training Markov Random Fields

Australian National University  
**Academic Tutor**

Teaching in tutorials of two courses (Intro. to ML & Algorithms) for both undergraduates and graduates.

Future Cup Supernova Search Challenge  
**Team Leader**

Responsibilities include:

- Cooperate with team members
- Do literature review about Supernova Recognition
- Process a dataset with over 15,000 images and implement a CNN model to find potential supernova

Shandong University  
**Research Assistant**

Responsibilities include:

- Work with the team and provide IT support
- Develop a no-reference image quality evaluation module using OpenCV in C++
- Automate a Laser-Induced Breakdown Spectroscopy (LIBS) System

## SKILLS

FAMILIAR    Git, Bash, L<sup>A</sup>T<sub>E</sub>X  
PROFICIENT    C++, Python, Ada, Matlab  
LANGUAGES    English, Mandarin

## ACCOMPLISHMENT & HONOR

- JULY 2020 **Chancellor's Letter of Commendation**  
*Australian National University* [Link](#)
- JAN 2020 **Deep Learning Specialization**  
*Coursera*
- MAR 2019 **Province-Level Second Prize**  
*LanQiao Programming Competition*
- SEPT 2018 **First Scholarship of University**  
*Shandong University*

## PROJECTS

*LIBS Autofocus System*

An autofocus system for Laser-Induced Breakdown Spectroscopy (LIBS), which implemented using techniques include a no-reference image quality evaluation algorithm and the Least-Square Regression method. [Link](#)

*De-Centralized Vehicle Movement Control System*

An assignment of COMP2310, implemented in Ada. A robust method for coordinating vehicles in 3D space is proposed in this project. [Link](#)

*Bidirectional Residual Declarative Network*

A reliable framework for robust facial expression recognition. The basic architecture for the framework is ResNet-18, in combination with a declarative  $L_p$  sphere/ball projection layer and a bidirectional fully connected (FC) layer. [Link](#)

## COURSES

Convex Optimization

Computer Vision

Neural Networks, Deep Learning and Bio-inspired Computing

Document Analysis

Introduction to Machine Learning

Algorithm

Principle of Computer Organization

## PUBLICATION

**Cui, R.,** Pledsted, J., Liu, J.: Declarative Residual Network for Robust Facial Expression Recognition. In: International Conference on Neural Information Processing