

# Ruiying Liu

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## EDUCATION

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**M.Eng. student** in Pattern Recognition and Intelligent Systems (recommended) *2019.08 -Present*  
Xiamen University (XMU) , Xiamen, China Supervisor: Prof. Yifeng Zeng  
*Overall GPA: 3.7/4.0*

**B.Eng.** in Automation *2015.09 -2019.06*  
Xiamen University (XMU), Xiamen, China  
*Overall GPA: 3.52/4.0*

## RESEARCH EXPERIENCES

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**Master Research Project** *2020.10 -Present*  
Multimodal document object detection which aims to detect elements including titles, tables, etc.

- Extends from proposal-based detector Faster-RCNN on MMDetection
- Generates language feature presentation using OCR Engine and FastText, and then conducts visual-language feature fusion
- Inspired from the special properties of documents, integrates binarization and extracted connected components into RPN to get more refined proposals

**University-enterprise Cooperative Project** *2019.10 -Present*  
A novel framework to detect desirable objects of scanned exam paper images

- Utilises connected component analysis and morphological transform technique
- Has been applied in the auto-correcting assistance software provided by the industrial collaborator
- Has been published in ICCSE, 2021

**Bachelor Thesis** *2018.10 -2019.05*  
Layout Analysis of Document Photos Based on OpenCV Library

- Segments text areas of workbook photos based on traditional digital image processing

## PUBLICATION

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**R. Liu**, S. Yu, F. Yang, Y. Pan, Y. Zeng, A Connected Components Based Layout Analysis Approach for Educational Documents, 16th International Conference on Computer Science & Education (ICCSE). IEEE, 2021: 875-880.

## SKILLS

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- Language: Native in Chinese, Fluent in English (IELTS 7)
- Programming Language: Python, C#, JAVA, MATLAB
- Tools: OpenCV, PyTorch, NumPy, L<sup>A</sup>T<sub>E</sub>X

## AWARDS AND HONOURS

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- Academic Scholarships of Xiamen University *2019-2021*
- 2nd prize in the China University Robot Competition (ROBOCON-China) *2018.07*
- 1st prize in the National College Students Mechanical Innovation Design Competition *2018.05*
- National Encouragement Scholarship *2015-2016, 2017-2018*
- Merit Student of Xiamen University *2015-2016*