Shuo Meng

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EDUCATION

Jiangnan University （National " Project 211" University） **09/2018-06/2021 (Expected)**
Degree: Master of Textile Engineering
GPA: 86.8 out of 100, ranking top 5%

Jiangnan University （National " Project 211" University） **09/2014-06/2018**
Degree: Bachelor of Textile Engineering (Minor in International Economics and Trade)
GPA: 3.58 out of 4, ranking top 5%

RESEARCH SKILLS

Programming: Java, Python, MATLAB, C#, JavaScript, CSS, HTML, SQL.
Platforms: Springboot, SpingMVC, Mybatis, Maven, Redis, Django, Keras, TensorFlow, Pytorch, ES6, Vue, JQuery, Layui, uni-app, MySQL, SQLite, Git.
Languages: Mandarin (Native), English (Fluent), IELTS 7 (Listening, Reading, Writing and Speaking: 8, 7, 6.5, 6.5).
Certificates: Certificate of National Computer II, Chinese National Scholarship.
Research Fields: Deep learning, Computer Vision, Intelligent Manufacturing, Full stack development (Front-end development, Back-end development, Desktop development).

RESEARCH EXPERIENCE

1. Recognition of Fabric Structure Parameters Based on Deep Neural Networks **01/2019-10/2020**

- A graduate project granted under the *Postgraduate Research & Practice Innovation of Jiangsu Province* 1062050205206039.
- Adopted a **wireless device** and established a **fabric images dataset** with elaborated structure parameters.
- Presented a **multi-task and multi-scale convolutional neural network** (MTMSnet) to recognize the fabric density, weaving pattern, reaching **under 2% and 10% error** respectively.
- Developed a **web system** and a **mini-program** to recognize fabric structure parameters on-line. https://www.jntex.cn
- The source code can be found in my GitHub: https://github.com/breeeak/MTMSnet-initial/tree/master/MTMSnet-dev

2. Fabric Defect Detection Based on Deep Neural Networks **02/2019-12/2019**

- A project came from the **competition** of *Tianchi 2019 Guangdong Intelligent Identification of Cloth Defects* https://tianchi.aliyun.com/competition/entrance/231666/information
- Proposed a **two-stage strategy** to do local defect prediction and global defect recognition by using the Inception-VI model and LeNet-5 model, reaching **93.2% accuracy** based on our cropped dataset.

3. Objective Evaluation of Fabric Smoothness Based on Deep Neural Networks **07/2019-04/2020**

- The **decoloration problem** was solved by a paired image-to-image translation model built by conditional generative adversarial networks (**GAN**), which is also promising for fabric defect detection and other problems.
- An **ordinal classification framework** based on label noise estimation (OCF-LNE) to objectively evaluate the fabric smoothness appearance degree. In this project, I helped to establish the dataset and the paper can be found in https://doi.org/10.1109/ACCESS.2019.2959705

4. Fabric Images Style Transfer Based on Deep Neural Networks **12/2019-05/2020**

- A genetic algorithm (**GA**) and A style-generative adversarial networks (**StyleGAN**) based method was adopted to realize the color transfer of colored spun yarned fabrics. The effect of the fabric images style transfer can be found in my GitHub: https://github.com/breeeak/FabricStyleTransfer

5. The Gender Classification of Dense Crowd Based on Deep Neural Networks **12/2019-09/2020**

- Proposed a **multi-scale cascade convolutional network** to achieve gender analysis in dense crowds, which can be extended to other relative detected scene areas. The source code can be found in my GitHub: https://github.com/breeeak/MTMSnet-initial/tree/master/crowd_gender

6. Clothing Attribute Recognition Based on RCNN Framework **07/2019-02/2020**

- A project based on **RCNN** framework Using **L-Softmax Loss** for the recognition of clothing attribute, reaching 87.77% labeling rate. Comprehensive accuracy and recall rate reached 73.59% and 83.84% respectively.
- Helped to collect images by **web crawler** with help of Scrapy and manually label the clothing attribute. The paper can be found in http://dx.doi.org/10.1109/access.2020.2979164

7. Development of ERP System in Textile Production Enterprises **08/2017-08/2019**

- A graduate project which was a **web-based production management system** specially designed for textile production enterprises, which also involved data-collecting devices based on **Arduino** to monitor weaving process in real-time.
- Responsible for the **back-end and front-end development** and the thesis "Development of APS Software for Scheduling of Multi-varieties Weaving Production" won the "*Excellent Theses of Jiangnan University*". The source code can be found in my GitHub: https://github.com/breeeak/jnERP

8. Yarn-dyed Fabric Images Retrieval Research Based on Feature Extraction **07/2016-07/2017**

- Realization of the fabric image retrieval by using various low-level features with the consideration of the importance of fine texture of fabric images. The source code can be found in my GitHub: https://github.com/breeeak/Fabric-Images-Retrieval-Matlab

Some of my research experience such as the source code, fabric image dataset, papers and projects can be found in my GitHub: https://github.com/breeeak/ResearchExperience

PRACTICE EXPERIENCE

Nanjing Riyixin Clothing Technology Co., Ltd. (Start-ups) **07/2019-09/2019**

Responsible for front-end development of the company's financial management system. Familiar with REST development and frameworks such as Springboot, Layui, uni-app, etc.

Danyang Dansheng Textile Co., Ltd. (Top 500 private textile enterprises in China) **06/2018-06/2019**

Participated in the ERP system development. Familiar with SSM framework and understand the RPC framework.

Shandong Lutai Textile Co., Ltd. (A and B listed companies) **06/2017-11/2017**

An internship in Scheduling Section. Familiar with the whole process of textile production including spinning, bleaching and dyeing, weaving, arranging, clothing, etc.

PUBLICATIONS

1. **Shuo Meng**, Ruru Pan, Weidong Gao, Jian Zhou, Jingan Wang, Wentao He. A multi-task and multi-scale convolutional neural network for automatic recognition of woven fabric pattern. *Journal of Intelligent Manufacturing*. https://doi.org/10.1007/s10845-020-01607-9
2. **Shuo Meng**, Jingan Wang, Ruru Pan, Weidong Gao, Jian Zhou, Wentao He. *Recognition of the layout of colored yarns in yarn-dyed fabrics. Textile Research Journal*. https://doi.org/10.1177/0040517520932830
3. **Shuo Meng**, Ruru Pan, Weidong Gao, Jian Zhou, Jingan Wang, Wentao He. *Woven Fabric Density Measurement by Using Multi-Scale Convolutional Neural Networks. IEEE Access*. 2019; 7: 75810-21. https://doi.org/10.1109/access.2019.2922502
4. **Shuo Meng**, Ruru Pan, Weidong Gao, Jingan Wang, Wentao He, Lijun Zhou. *Research on weaving scheduling using main objective evolutionary genetic algorithm. Journal of Textile Research,* 2019, 40(8): 169-174. https://doi.org/10.13475/j.fzxb.20180505606
5. **Shuo Meng**, Xuwen Xia, Ruru Pan, Jian Zhou, Lei Wang, Weidong Gao. Detection of fabric density uniformity based on convolutional neural network. Journal of Textile Research, 2021, 42(2): 101-106. https://doi.org/10.13475/j.fzxb.20201008406
6. **Shuo Meng**, Xuwen Xia, Wentao He, Jun Xiang, Ruru Pan, Weidong Gao. *Automatic Recognition of Woven Fabric Structure Parameters——A Review. Textile Research Journal. (*Under review*)*
7. **Shuo Meng**, Wentao He, Jingan Wang, Jun Xiang, Ruru Pan, Weidong Gao. *Gender Classification in Crowd Based on a Cascaded Neural Network. Soft Computing*. (Under review)
8. Zhongjian Li, **Shuo Meng**, Lei Wang, Ning Zhang, Weidong Gao. *Intelligent recognition of the patterns of yarn-dyed fabric based on LSRT images*. Journal of Engineered Fibers and Fabrics. 2019; 14: 1558925019840659. https://doi.org/10.1177/1558925019840659
9. Jingan Wang, **Shuo Meng**, Kuangjun Shi, Lei wang, Fengxin Sun, Ruru Pan, Weidong Gao. *Objective evaluation of fabric smoothness appearance with an ordinal classification framework based on label noise estimation. Textile*

Research Journal. http://dx.doi.org/10.1177/0040517520939574.

10. Jun Xiang, Jingan Wang, Jian Zhou, **Shuo Meng**, Ruru Pan and Weidong Gao. *Fabric defect detection based on a deep convolutional neural network using a two-stage strategy. Textile Research Journal.* https://doi.org/10.1177/0040517520935984
11. Ning Zhang, Ruru Pan, Lei Wang, **Shuo Meng**, Weidong Gao. *Pattern retrieval of yarn-dyed plaid fabric based on modified interactive genetic algorithm. Color Research and Application.* http://dx.doi.org/10.1002/col.22538
12. Wentao He, Ruru Pan, Weidong Gao, **Shuo Meng**, Jingan Wang. *Weaving scheduling based on an improved ant colony algorithm. Textile Research Journal.* https://doi.org/10.1177/0040517520948896.
13. Ning Zhang, Qun hu, **Shuo Meng**, Ruru Pan. *Appearance Transfer for the Fabric of Colored Spun Yarn Based on Image Color Transfer. Textile Research Journal.* (Accpeted).

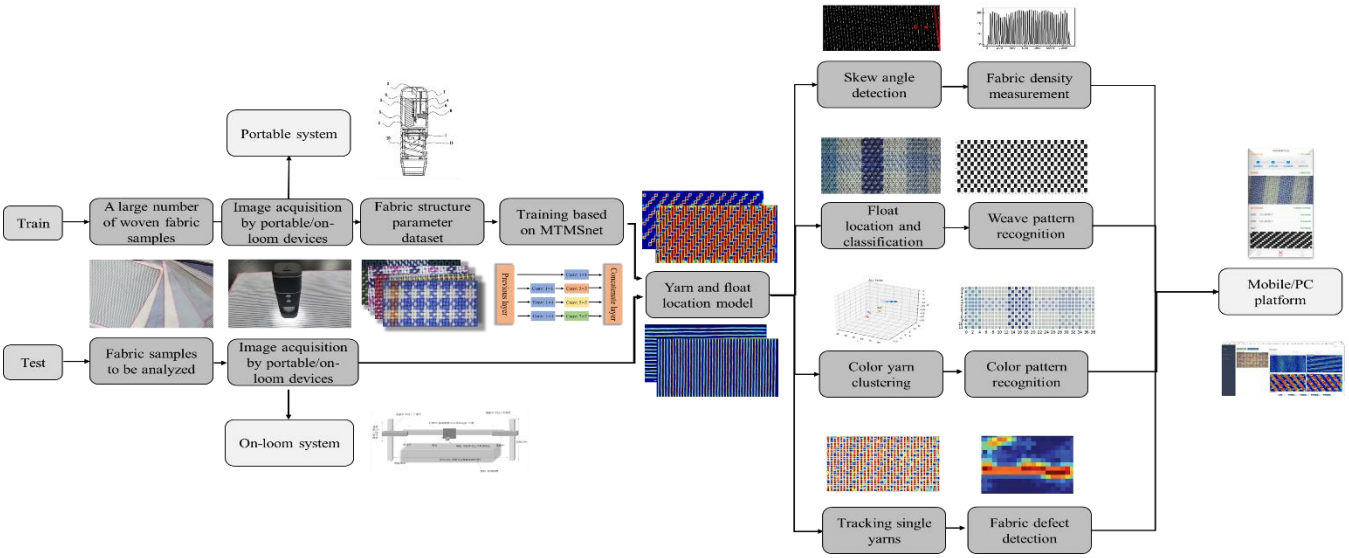
PATENTS

1. Ruru Pan, **Shuo Meng,** Weidong Gao, Jian Zhou. *A method based on convolutional neural networks for the recognition of woven fabric structure parameters.* Filing No. 2020104863316, PRC Invention Patent (2020).
2. Ruru Pan, **Shuo Meng,** Weidong Gao, Jian Zhou. *An online portable system for the recognition of woven fabric structure parameters.* Filing No. 2020104863195, PRC Invention Patent (2020).

RESEARCH INTERESTS

1. Automatic Recognition of Fabric Structure Parameters and Fabric Defect Detection

The below figure shows the methodology of the project whose framework has been initially established. The project aims to apply in real production which includes on-loom system, online web service and tracking single yarns based on CNN to detect fabric defects.



2. Clothing Attribute Recognition and Aesthetic Understanding Based on a Small Dataset.

The below figure shows the overview of a RCNN based framework for clothing attributes recognition. By recognizing and analyzing the attribute related to fashion style and consumers' preferences, the fashion trend can be predicted. The key of the project is to establish related dataset and build the relationships between aesthetic and style.