

# Xu Dong ( 董昀 )

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Github: <https://github.com/dx199771>

Research direction: Computer Vision, Computer Graphics



## EDUCATION

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### Queen Mary University of London (Distinction)

Sep 2020 - Sep 2021

Computer Science (Media and Arts Technology) Master Supervisor: Professor Ebroul Izquierdo

- Dissertation: Two-Stream Figure–Ground Group Activity Recognition System in Soccer Videos

### The University of Sheffield (Upper 2:1)

Sep 2017 - Jul 2020

Artificial Intelligence and Computer Science Bachelor Supervisor: Professor Rob Gaizauskas

- Dissertation: Pedestrian tracking using HOG detection & CSR-DCF on campus

## WORK EXPERIENCE

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### Aibee Inc. (Full-time)

Mar 2022 - Present

Algorithm Engineer (Image understanding)

- Designed, optimized, and researched on algorithms for large scale vehicle/object tracking and other computer vision problems using state-of-the-art **Object detection**, **Graph Convolution network**, **Person re-identification** and **Multimodel Fusion methods**.
- Responsible for data cleansing, feature engineering, model training, results evaluation, case-by-case analysis.

## RESEARCH EXPERIENCE

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### Two-Stream Figure–Ground Group Activity Recognition System in Soccer Videos

Sep 2020 - Sep 2021

- Inspired by Gestalt's figure-ground psychology theory, proposed a two-stream group activity recognition system using **video understanding** and **skeleton action recognition** technology.
- Used **Mask-RCNN** for object detection, **I3D&C3D** for video feature extraction and **ST-GCN** for human pose estimation.

### Interpretable Font Generation with Texture Synthesis

Oct 2020 - Apr 2021

- Proposed an **interpretable GAN** network for glyph generation and a **synthesis network** is used for texture generation.
- Used web crawler technology for font styles collection and dataset built; Designed an interpretable generation model based on **InfoGAN** and **C-GAN**. The font texture is synthesized by convolutional neural network and applied to the generated font skeleton.

### ACM MM 2021 Multi Model Product Identification

Apr 2021 - Oct 2021

- Used **data augmentation** method to improve the imbalance of training data; Used **Scaled-YOLOv4** to detect objects in the video; Used **LSTM** to extract voice/text information features and **CGD** is used to extract image features.
- Image and voice features are concatenated using **Multimodel fusion** methods to achieve

instance level object retrieval.

## HONORS & AWARDS

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- ACM MM 2021 Watch and Buy Product Recognition Competition (Top 3%) (Apr 2021)
- The University of Sheffield International Student Scholarship (Sep 2017)
- The Global Engineering Challenge Award (Feb 2019)

## SKILLS

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- Proficient in using Python, C++, C#, Shell, PyTorch, OpenCV, Numpy.
- Familiar with Linux, Git, VSCode, Docker, Hadoop, MySQL, Unity.
- Familiar with Video understanding, Image retrieval, GAN, SLAM, Game development, have solid foundation in data structure and algorithm design.
- English literature reading and writing skills, proficient in using Adobe, Office series software, video/photo editing.

## EXTRACURRICULAR ACTIVITIES

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### **Course search system of UOS**

- Participated in the production of the course search system of UOS.
- Designed and produced front-end content for web pages, built the courses data structure using MySQL.
- Assisted the project leader to manage the team and delivered the work within the specified time.

### **Media assistant of the Consulate-general of China in Manchester**

- Assisted the staff of the Manchester Consulate-General in preparing various activities.
- Responsible for event video/photos editing, interviewing foreign guests and writing post.