

TCL Corporate Research (Hong Kong) Co., Limited

Engineer Intern – Image and AI Engineering

TCL Research is seeking Engineer Interns to join our Image and AI Engineering R&D team to work on one of the follow projects:

Multimodality interaction application development

The demand for multimodality interaction with different types of technical products, including televisions, is increasing. TV devices have already brought new experiences to users by adding the input of voice control, rather than the traditional single-mode remote control.

In the future, user needs will be met in other innovative ways, e.g., gestures, eyeball tracking, and so on. This multimodality interaction will bring users a brand-new experience and make life more convenient. The multimodality interaction project team aims to design such innovative interaction methods and plans to apply them to TCL smart TVs in the future.

In this internship program, you will join the project team to develop a multimodality interactive prototype system for smart TVs.

In this project, you will join the project team:

1. According to the requirements document, develop the Android app with the team, and optimize the performance and effects of the app.
2. Output the development summary document.

Image quality enhancement application development

We are trying to enhance the image quality captured by mobile phone by keeping HDR, saturation, etc., which makes image more attractive without over-exposure, color distortion, etc. Network optimization and transcoding are adopted to compatible different mobile OSs. Super-resolution (SuperRes) is an algorithm for upgrading and improving the details of an image: a high-resolution image is reconstructed through one or more frames of low-resolution images. Currently, TCL Hong Kong Research Centre is developing SuperRes that combines AI methods and traditional image processing methods and plans to apply it to TCL smartphones.

In the internship project, you will join the image quality enhancement team and will be responsible for optimizing, testing and verifying algorithms and models. Through this internship program, you will learn the most advanced image processing algorithms, and experience the industry development process.

In this project, you will join the project team:

1. Optimize the image quality enhancement model and related algorithms on mobile platform;
2. the image quality enhancement test and verification.

Automatic Defect Classification application development

TCL Research is seeking Engineer Interns to join the project team to work on the project: “Product Inspection Solution Development for Semiconductor Display”. The duration of the internship is 6 months and candidates are encouraged to apply early.

The production line of TCL semiconductor display panels is 95% automated. However, product and equipment abnormality detection still relies on manual judgment and processing. There are a large number of quality inspection pictures which are generated every day (≥ 40000 pictures/day/production line). The manual detection cannot fully cover malfunctions and defects, and there will be misjudgements. In terms of economic costs/benefits, high manual participation costs large manpower for enterprises because of the long cycle training and high turnover rate. Therefore, it is necessary to implement an intelligent and automated product inspection solution for semiconductor display products.

Project Tasks:

1. Explore an industrial anomaly detection algorithm with strong versatility. The algorithm model requires easy manual parameter tuning and easy migration to different tasks.
2. No limitation on the methods: 1) Generate adversarial models, convolutional autoencoders, pre-trained neural network features and other deep learning models; 2) Traditional image methods (generality and an absence of complicated manual tuning process are required).

Requirements:

- Major in STEM-related discipline such as Computer Science, data science, Electronic Engineering, Information Engineering, Mathematics or relevant discipline.
- The candidate should be interesting in the field of computer vision, image processing and machine learning.
- Experience in programming using Python/C++
- Experience in image processing, or machine learning, or deep learning model development
- Preferred: Experience in deep learning frameworks (Tensorflow, Caffe, PyTorch, Keras)
- Preferred: Experience in below areas: super-resolution, image enhancement, etc.

Interested parties please send your CV to cecilia.tam@tcl.com