



## Smart Oilfield

- Discussed extensively with oil and gas experts for acquiring professional knowledge and annotating a large set of anomalous and normal videos captured at *PetroChina North China Oilfield*
- Adapted and trained state-of-the-art computer vision and deep learning models as backbone on the annotated images and videos for abnormal or violation activity recognition at construction site, such as PPE wearing, use of mobile phone, fire and smoking detection, and illegal trespassing.
- Deployed the trained models on Atlas 500 AI Edge Station with embedded Docker environment, and tested with live stream from security camera as the input, ONNX Runtime and OM model for hardware acceleration, and output stream achieved at 30 FPS being casted to monitoring platform

## Distraction Alarmer

- Collected 1500+ images of focused and distracted eyes to train a Convolutional Neural Network to predict attention paid to the surroundings, achieving an accuracy rate of 80%
- Established a multi-processing platform for sound and detection algorithm to appear simultaneously
- Communicated effectively with team members to distribute workload and collaborate through GitHub

## Global Mean Sea Level Prediction

- Acted as the project team lead and allocated the workload evenly into data collection, preparation, modelling, and visualization
- Leveraged Python Pandas and NumPy packages to manipulate and clean the dataset for exploratory data analysis and data modeling
- Utilized data analysis and visualization packages (Matplotlib) to translate complex data into actionable insights and extract meaningful conclusions

## Ready for Departure

- Collect real-world flight route, airport and ticket price data and constructed graph data structure with node representing airport and edge representing the flight between airport terminals
- Applied A\* Search Algorithm to find the optimal flight routes (based on different cost/distance heuristics) between any two specified departure and arrival terminals

## EDUCATION and HONORS

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### ***Bachelor of Computer Science, University of Toronto***

09/2020 – Present

Computer Science and Data Science Specialist with Cumulative GPA 3.98/4.0

Dean's List Scholar

Star Intern Certificate for Self-Attention Defect Detection by the Vice President Dr. Tao Mei of JD.com 2021

3<sup>rd</sup> Place in Open-World Image Classification Challenge at CVPR2021 Workshop 2021

Top 2% on CCC, University of Waterloo 2020

Top 3% on Euclid Contest and CSMC 2019

## PUBLICATIONS

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**Zixin Guo**, Ruizhi Yang. "A Channel Attention and Feature Manipulation Network for Facial Expression Recognition," the 3rd International Conference on Signal Processing and Machine Learning, 2023 (Oral Presentation)