# Tianyu Sun

CONTACT Information Computer Science

UC San Diego San Diego, 92093, United States E-mail: tianysun@gmail.com Github: https://github.com/tianyu-sun

EDUCATION

University of California, San Diego, San Diego, USA

• Visiting student, Computer Science

Sept. 2018 –

National Taiwan University of Science and Technology, Taipei, Taiwan

• Exchange student, Computer Science GPA:4.12/4.3

Feb. 2017 - June 2017

Mobile: (+1) 858 344 8693

University of Science and Technology Beijing, Beijing, China

• Bachelor, Computer Science GPA:86.4/100

Aug. 2015 -

RESEARCH EXPERIENCE National Laboratory of Pattern Recognition (NLPR)

Institute of Automation, Chinese Academy of Sciences (CASIA), Beijing, China

Research Intern, supervised by Prof. Liang Wang

June 2017 –

- Segmented human parts of a large Person Re-ID dataset with more than a million images with DensePose. Extracted features of the images with ImageNet Pre-trained model. Applied graph convolutional networks to the features to accomplish state-of-the-art performance.
- Proposed a method [1] of increasing the performance of gait recognition by heightening the frame rate with generative adversarial networks, which achieved a classification accuracy comparable to state-of-the-art model with a 8-layer simple base model.

National Taiwan University of Science and Technology, Taipei, Taiwan

Undergrad Researcher in Machine Learning and Bioinformatics Laboratory,

supervised by Prof. Hsing-Kuo Kenneth Pao

Mar. 2017 – June 2017

- Wrote a demo which combined Gaussian Process Regression (GPR) and Generative Adversarial Networks (GAN) for predicting  $CO_2$  level and achieved **2X** speed and **10X** accuracy than using GAN without GPR. Wrote another demo, which employed hierarchical sampling to boost the performance, to apply this model to traffic time series prediction.
- Surveyed active learning, analyzed how to get an accuracy as high as using the whole dataset with a selected small subset of original dataset.

University of Science and Technology Beijing, Beijing, China

Undergrad Researcher, supervised by Prof. Rui Wang

Nov. 2016 - June 2017

- Wrote a survey about the existing incentive mechanisms for participatory sensing, which took about one hundred papers into consideration.
- Participated in designing a taxonomy of human types to boost Bayesian networks on predicting forwarding/sharing in social networks.

Ready to Submit I] **T. Sun**, C. Song, Y. Huang, and L. Wang, "Frame-GAN: Increasing The Frame Rate of Gait Videos with Generative Adversarial Networks" **Ready to Submit**.

SKILLS

- Frameworks and Data Analysis Libraries
   TensorFlow, PyTorch, OpenCV, Spark, Numpy, Scikit-learn, Pandas, Matplotlib
- Programming Languages
  Python, C++, C, JAVA, JavaScript, NodeJS, CSS, HTML

SELECTED PROJECTS

## Applying Pre-trained Model on Recognition

A demo which illustrates how to apply ImageNet pre-trained model on a custom dataset. We show how to apply ImageNet pre-trained model on a custom dataset with fine tuning. We achieved **2.7X** accuracy than random on a toy face recognition dataset with one-minute training on MacBook Air.

#### Tuning Tree Models with Gird Search

Analyze a dataset from Microsoft, which has 1804 features and 10868 records, with gradient boosting tree model and XGBoost model. We implemented gird searching for tuning the models.

### Big Data Feature Selection with sk-learn

We get a dataset from Microsoft, which has 1804 features. We employ a random forest algorithm with 100000 decision trees and use cross-validation to decide which features are important. A ranking list of the importance of features is extracted and the top-10 features can be extracted for active learning.

OTHER EXPERIENCE

#### ACM-ICPC Team@University of Science and Technology Beijing

Team Member, supervised by Prof. Yuan Hong

Nov. 2015 – June 2017

Third Prize

• China Collegiate Computing Contest - Group Programming Ladder Tournament National Final