Quang **Truong**

Computer Science · Research Assistant

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Research Interests

Computer Vision, Image Processing, Pattern Recognition, Machine Learning.

Education

Texas Christian University — *Fort Worth, Texas*

B.S. in Computer Science, Minor in Mathematics — *January. 2019 - Exp. May. 2022*

- Bronze Medal - Ranked 12/60 in ACM-ICPC 2019 South Central USA Regional Contest.
- Full-tuition Scholarship.
- TCU Scholar (Spring 2020, Fall 2020, Spring 2021).
- Dean's List (Fall 2019, Spring 2020, Fall 2020, Spring 2021).
- GPA: 3.955/4.0, Major GPA: 4.0/4.0

Mississippi State University (Incomplete) — *Mississippi State, Mississippi*

B.S. in Computer Science — *August. 2017 - Dec. 2018*

- Freshmen Academic Excellence Scholarship.
- President's Scholar (Fall 2017, Spring 2017, Fall 2018).
- GPA: 4.0/4.0

Research Experience

UIC Department of Computer Science — *Chicago, IL*

Research Intern - 3D Object Reconstruction Project — *May. 2021 - Present*

- Develop a novel 3D object reconstruction approach for holistic scene understanding.

TCU Department of Computer Science — *Fort Worth, TX*

Undergraduate Research Assistant - Domain-invariant Network for Vehicle Re-identification Project — *Dec. 2019 - May. 2021*

- Designed a Vehicle Re-identification pipeline powered by GAN for adaptive domain learning.
- Proposed a novel image filtering algorithm that significantly reduces the learning duration of the model without compromising the performance.
- Achieved state-of-the-art results on VeRi-776 (mAP 85.78% and rank-1 97.14%).

TCU Department of Computer Science — *Fort Worth, TX*

Undergraduate Research Assistant - Image-based Vehicle Re-identification - AI City Challenge — *Dec. 2019 - May. 2020*

- Designed a Vehicle Re-identification pipeline to compete in 2020 AI City Challenge - CVPR 2020 workshop.
- Adopted Detectron2 (Faster-RCNN) developed by Facebook to effectively crop image for noise reduction.
- Proposed adaptive attention-driven model with ResNet50 backbone for Vehicle Re-identification.
- Proposed metadata re-ranking method that takes color and type features extracted by ResNeXt101 into consideration when performing k-reciprocal re-ranking.

TCU Department of Computer Science — *Fort Worth, TX*

Undergraduate Research Assistant - Beijing Housing Price Prediction Project — *Jun. 2019 - Dec. 2019*

- Applied multiple techniques such as Stack Generalization or Hybrid Regression to enhance the prediction.
- Visualized the housing price distribution of Beijing to find the correlation between price and other features.
- Evaluated the performance of tree-based regression models on feature-rich datasets.
- Investigated the enhancement of prediction results after combining Machine Learning models.

TCU Department of Computer Science — *Fort Worth, TX*

Undergraduate Research Assistant - AI-2-Go Project — *Jan. 2019 - Sep. 2019*

- Re-modeled Alpha Go Zero to discover the optimal solutions for Go game.
- Simulated Go matches between two AIs to find the better AI version.

MSU Department of Computer Science and Engineering *Mississippi State, MS*

Technical Team Member - MSU State Space Robotics Team *Oct. 2017 - Dec. 2018*

- Simulated environments for testing obstacle avoidance features of robots using ROS.
- Delivered the final robot to the yearly NASA Robotic Mining Competition.

Publications

Peer-reviewed Conference Publications

[1] Not All Data Matters: An Efficient Approach to Domain Learning in Vehicle Re-identification
Quang Truong and Bo Mei. **2021**
Manuscript under review at IEEE ITSC 2021.

[2] Housing Price Prediction via Improved Machine Learning Techniques
Quang Truong, Minh Nguyen, Hy Dang, and Bo Mei. **2020**
Procedia Computer Science. 2019 International Conference on Identification, Information and Knowledge in the Internet of Things. Elsevier, pp. 433–442. DOI: https://doi.org/10.1016/j.procs.2020.06.111.

Technical Reports

[3] Image-based Vehicle Re-identification Model with Adaptive Attention Modules and Metadata Re-ranking
Quang Truong, Hy Dang, Zhankai Ye, Minh Nguyen, and Bo Mei. **2020**
The Boller Review. TCU Press. arXiv: 2007.01818 [cs.CV].

Skills

Programming	Python, C/C++, Java, SQL, R, Scala
Computer Vision and ML	Pytorch, Scikit-learn, MxNet, Gluon, Tensorflow, Keras, Matplotlib, Numpy, Pandas
Robotics	ROS
Languages	English, Vietnamese

Relevant Coursework

Computer Science	Operating Systems, Microprocessor-based Digital Systems, Object-Oriented Programming, Analysis of Algorithm, Unix/Linux System Administration, Data Mining and Visualization, Database Systems, Computer Organizations, Computer System Fundamentals, Programming Language Concepts, Data Structures
Math	Applied Linear Algebra, Statistics, Discrete Mathematics, Linear Algebra, Calculus I-III

Presentation

Annual Industrial Board Meeting *Fort Worth, TX*

Oral Presentation for Domain-invariant Network for Vehicle Re-identification Project *Oct. 2020*

- Introduced current progress of the research project on domain-invariant learning in vehicle re-identification.
- Illustrated methodology and compared it with other state-of-the-art approaches.

Honors & Awards

2021	**Best Undergraduate Research Poster**, Student Research Symposium	*Fort Worth, TX*
2020	**Research Grant for Domain-invariant Network for Vehicle Re-identification - $1471**, SERC Undergraduate Research Grant	*Fort Worth, TX*
2019	**Research Grant for Beijing Housing Price Prediction - $1500**, SERC Undergraduate Research Grant	*Fort Worth, TX*
2019	**Research Grant for AI-2-Go - $1500**, SERC Undergraduate Research Grant	*Fort Worth, TX*
2019	**Best Undergraduate Research Poster**, Student Research Symposium	*Fort Worth, TX*
2019	**Scicom Award**, Student Research Symposium	*Fort Worth, TX*
2019	**1st Prize**, Calculus Bee	*Fort Worth, TX*