同济大学 TONGJI UNIVERSITY

Huang Chenran

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Education

Tongji University
Software Engineering (Machine Intelligence) Senior year
GPA: 92.79/100, **ranking 1/226(0.4%)** CTE6: 568
Courses: Machine Learning (A), Computer Vision (A), Algorithm Design and Analysis (A), Advanced Programming Language Design (A), etc.

Honors and Awards

2023-2024 National Scholarship 2023-2024
2022-2023 National Scholarship 2022-2023
Tongji University Outstanding Student Model (0.5%) 2022-2023
Gold Award of the 13th "Challenge Cup" Business Plan Competition (top prize, 0.04%, first member) 03/2023
Bronze Award of the 8th "Internet+" Innovation and Entrepreneurship Competition 10/2022

Research Experience

Blockchain-Enabled Collaborative Task Offloading for Zero-Trust Vehicular Fog Computing
Tongji Network and Machine Intelligence Laboratory 06/2023-02/2024

- Propose a blockchain-enabled zero-trust vehicular fog computing framework. The framework enables the continuous verification and dynamic authorization of task offloading in vehicular fog computing.
- Propose a multi-attribute offloading and group-based continuous verification scheme.
- The experiments show that our scheme **reduces latency by 18% and increases throughput by 34%**. (**Published in IEEE GLOBECOM** (Flagship Conferences), **first author**).

An Efficient and Trusted Collaborative Task Offloading Scheme for Vehicle Fog Computing
Tongji Network and Machine Intelligence Laboratory 02/2024-07/2024

- Propose an innovative BlockZT-VFC multi-intelligence agent (vehicle) collaboration framework. Based on the law of large numbers, entitled Hungarian matching and genetic algorithm and other group intelligence algorithms to ensure that the computation is trusted and reduce the delay, simulation results show that the framework increases the task success rate by 38% and reduces the delay of the checking algorithms by 22%. (**Submitted to IEEE TMC (CCF-A), first author**)

Digital Identity Verification based on Multimodality 09/2023-12/2023
Laboratory of Prof. Du Qingfeng (xlab), Tongji University

- We recognized and extracted faces from images by the MTCNN. Then the similarity vectors of the faces and the audio are extracted using Inception-Resne and ECAPA-TDNN, respectively. We process audio and video similarity vectors and fuse two modal information. The experiments show that our method improves the accuracy from 89% to 96%.

A High-coverage Adversarial Testing Approach for Deep Learning Models 06/2022-12/2022
National Student Innovation Program

- Aiming at the problems of slow testing speed and average quality of test samples of existing testing methods (DeepXplore,DeepMC) for DNN networks, we propose the testingGAN model, and experiments on different datasets and recognition networks prove that the test samples generated by the proposed model have better challenge and neuron coverage, and reduce the time overhead of test sample generation.

A Light-Weight and Modular Simulator for UAV Integrated Vehicular Fog Computing 03/2023-01/2024

- Develop an air-ground collaborative vehicular fog computing (VFC) simulation platform. The platform solves unmanned aerial vehicles trajectory planning, task offloading, security and privacy, and dynamic resource allocation in VFC. The simulation results demonstrate the platform's capability to accurately model and analyze complex interactions in UAV-integrated VFC scenarios. (**Submitted to IEEE TMC**, second author).