ZHIYUAN QI

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EDUCATION

Tsinghua University, Master in EECS **GPA:3.74/4.00**, 2024 - present
Beijing Jiaotong University, Bachelor in Communication Engineering **GPA:3.89/4.00**, 2020 - 2024

PUBLICATIONS

1. **Zhiyuan Qi***, Yulong Feng and Zhijin Qin, "Adaptive Sampling and Joint Semantic-Channel Coding Under Dynamic Channel Environment," ICC 2025 - IEEE International Conference on Communications, Montreal, QC, Canada, 2025, pp. 518-523, doi: 10.1109/ICC52391.2025.11161632.
2. **Zhiyuan Qi***, Jingkai Ying*, Yulong Feng, Zhijin Qin, Zhu Han, Rahim Tafazolli and Yonina C Eldar, "Semantic Communication Enabled Holographic Video Processing and Transmission," IEEE Communication Magazine, Accepted (JCR Q1/SCI Q2).

PATENTS

1. "A Channel Environment Adaptive Joint Optimization Method and System for Sampling-Semantic-Channel Coding", ZL 2024 1 1509807.8, Granted
2. "A Joint Optimization Method, Device, and Medium for Sampling-Semantic in Point Clouds for Holographic Communications", ZL 2025 1 1141478.0, Granted

SELECTED HONORS AND AWARDS

National Scholarship 2022
Tsinghua University Comprehensive **1st-Class** Scholarship 2025
The China Graduate Electronic Design Contest **2nd** Prize 2025

RESEARCH EXPERIENCE

A Holographic Classroom Based on Multi-View 3D Reconstruction and Digital Avatar 2025 - present
Student Researcher | Tsinghua University, Department of Electronic Engineering | Beijing, China

- Develop a semantic-driven sampling and compression algorithm for 3D point clouds, which significantly reduces data volume while preserving key information(such as facial features and details), thereby enhancing transmission real-time performance and quality.
- Improve 3D human pose estimation framework and optimize real-time digital human generation through asynchronous pipelining.
- The teacher's point cloud is captured via 4 Microsoft Azure Kinect DK camera arrays and reconstructed through fusion algorithm. The student's digital avatar is driven by key facial and limb parameters captured through a monocular RGB camera.

AI Psychological Counselor Based on Knowledge Graphs and Emotion Analysis 2022 - 2023
Student Researcher | Beijing Jiaotong University, Department of Electronic Engineering | Beijing, China

- For the professional psychology Q&A module, knowledge graph-driven procedure is achieved through intent recognition through LR+GBDT multi-model fusion and Bert+TextCNN, coupled with entity recognition via BiLSTM-CRF+AC automata. Response quality is enhanced through RL polling strategies.
- For the counselor script generation module, finetune UniLM on targeted datasets across different scenario categories. Based on an enhanced Encoder architecture, it employs a specific self-attention mask mechanism to achieve seq2seq modeling, generating targeted and comforting psychological counseling scripts.

RELATED COURSES

3D Computer Vision (4.0/4.0) | Convex Optimization (4.0/4.0) | Intellitent Wireless Communication (4.0/4.0)
Calculus (4.0/4.0) | Linear Algebra (4.0/4.0) | Probability Theory and Mathematical Statistics (4.0/4.0)
Data Structure (4.0/4.0) | Signal and System (4.0/4.0) | Digital Signal Processing (4.0/4.0)

SKILLS

Python, Pytorch, MATLAB, C/C++, Unity, Microsoft Azure Kinect DK, Git, Docker, Conda, CMake

SELECTED SERVICES

Reviewer for IEEE ICME, IEEE Communication Magazine.