

# TianZhou Wang

Ph.D. in Science, Graduate School of Chinese Academy of Sciences

Senior Engineer, Tencent Technology

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## Work Experience:

### Tencent Technology (Shenzhen) Co., Ltd. (2018.2-Present)

2021-Present, Tencent Interactive Entertainment Group, IEG

Editorial Board Member of Tencent Game Essence 3, Chief Editor of the Animation Chapter

- **Action keyframes Calculation using neural networks, neural network animation acceleration."**:
  - Generate intermediate frames in fighting game animations using a time-series encoder-decoder and mixture expert networks. Operator acceleration is achieved using X86 SIMD and ARM NEON instruction sets on console and mobile platforms respectively, with performance surpassing the industry-standard ONNX Runtime library.
- **Voice bot in shooting game "Arena Breakout"**:
  - voice command FPS AI uses the most advanced generative AI technology, including voice input, large language model, real-time speech synthesis and environment recognition. Full stack developer from device input, network transmission and backend services

Paper And Patent:

Interactive AI Companions in Gaming: Language-Based Communication for Collaborative Play, IJCAI2025.

2024070203CN: A Method for Implementing Gameplay Control of Game NPCs via Voice Commands

2024070204CN: A Scheme for Game AI Voice Feedback Based on Static and Runtime Information in "Arena Breakout Infinite"

2024070206CN: A Natural Language Command Intent Recognition Scheme for Shooting Games

2024070253CN: An Adaptive Voice Interaction Method Applied to Game Scenarios

2024070255CN: A Realistic Voice Feedback System Applied to Game Scenarios

- **Large-scale Urban Scene Reconstruction:**
  - Using large models and AIGC technology to reconstruct urban scenes. Applications include: urban architecture in flight simulations, and city reconstruction for the Beijing Central Axis World Heritage nomination.

Paper :

Deep Learning and Large Model Techniques: Application in the Real-Scene Reconstruction of Beijing's Central Axis, 2024 Large Models Special Issue of Chinese Ministry of Industry and Information Technology,

- **Real-time Volumetric Rendering Using DNN with Multi-feature Fusion:**
  - Impletion Multi-feature Radiance-Predicting Neural Networks within a lightweight feature fusion neural network for rendering high-order scattered radiance of participating media in real time. Using low-cost Neuron Network approximate the Radiative Transfer Equation, reducing the computation cost of RTE estimation to speedup Volumetric Rendering.

2019.4-2021 Tencent Robotics X, Zhengyou Zhang's Lab,

Technology and Engineering Group, TEG

- **Robot kinematics control, responsible for intelligent algorithm implementation and algorithm acceleration:** :
  - Possess a strong understanding of model training and tuning processes, neural network operator optimization, and CPU instruction set optimization for both X86 and ARM architectures. Experienced in developing acceleration solutions for model compression

- and quantification. using phase-functioned neural networks (PFNN), neural state machine networks (NSM), and physics-enhanced simulations (Deep Mimic) to generate skeletal movements in robots and games. Deploy the latest research advancements to replicate various joint movements within the UE4 environment.
- Using assembly and CPU intrinsics to do handwriting of neural network operators. Through model quantification and data arrangement, the computation efficiency is 20 times fast than that of the eigen library and several times that of Openblas.

Patent:

2020110635CN-HK, A Multi-Style Learning Technology for Intelligent Generation of Game Character Actions

2020110644CN-HK, A Low-Bit Vector Matrix Multiplication Acceleration Scheme Based on Single Instruction Multiple Data Streams

2020110634CN-HK, A Technology for Intelligent Generation of Game Character Cover Actions

2020110631CN-HK, A Variable Frame Rate Technology Based on Neural Network Action Generation

2020110633CN Methods, devices, electronic equipment, and storage media for generating motion data

### 2018.3-2019.4 Tencent AiLab

Technology and Engineering Group, TEG

- **Reinforcement learning algorithm Design & Implementation:**
  - Reinforcement learning algorithm training, physics simulator development and Virtual to real-world model migration. Familiar with using UR series robotic arms and Shadow robotic hands..

Paper and patent:

19PCT346/US-2 2018060380CN-PCT-US\*2 A 3D Object Segmentation Scheme Applied to Indoor Simulation.docx Indoor Physical Simulation and Robot Control

## Taobao (China) Software Co., Ltd., Alibaba Group (2011.4-2017.12)

2013-2017.12, Speech and NLP Semantic Analysis Team, Taobao Main Search Group

- Develop voice search for Taobao:
  - Use voice for product searching and product evaluations. Bring input convenience to user interaction.
  - As the main speaker to introduce Taobao voice search in SACC2017.

Participate in Taobao Knowledge Graph Construction

2011.5-2013. Taobao Transaction Information Team, Taobao Product Center  
Data Mining Team Lead,

- Taobao consumer information analysis & Taobao consumer review mining:
  - Build a Taobao consumer information system and create user profiles for Taobao consumers. Subdivide consumers by analyzing their behavioral data on Taobao. Provide foundational data for downstream applications such as search and recommendation systems. Taobao review mining, extract information from Taobao reviews, mine consumers' core viewpoints on products, the advantages and disadvantages of products, and mine product information from consumers' evaluations of products.

**As the main speaker to introduce Taobao consumer information datamining in Alibaba Taobao Technology Carnival Conference 2012**

Proficient in using Hadoop and Alibaba ODPS for big data mining and development

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**Overseas experience:**

**2010.3-2011.4 Siemens Corporate Research** , Princeton, new jersey. Visiting scholar

Paper and Patent:

Multi-part left atrium modeling and segmentation in C-arm CT volumes for atrial fibrillation ablation, Yefeng Zheng , Tianzhou Wang, Miccai 2011

US Patent:

Siemens File No. 2011P05074US01 entitled Method and System for Multi-Part Left Atrium Segmentation in C-Arm Computed Tomography Volumes Using Shape Constraints

**2005.7-2006.4 Tata Research Development and Design Centre.** Visiting Student.

Participated in project exchanges in the fields of machine learning and information extraction.

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**Education:**

2003.6-2010.3 Ph.D., Graduate School of Chinese Academy of Sciences, space science laboratory of NAOC

2001.3-2003.6 Bachelor, Exchange Student in Computer College of Beihang University (BUAA)

1999.9-2001.2 Zhejiang university of technology, advanced class

PhD Research :

Onboard Algorithm design for space exploration equipment. Developing Image processing system for Sino-France Satellite SVOM mission

SVOM Mission space exploration satellite

Paper:A Fast Onboard Star-Extraction Algorithm Optimized for the SVOM Visible Telescope.

China Science, WANG Tianzhou QIU Yulei CAI Hongbo ENG Jingson

Attachment:

Tencent C++ Outstanding Lecturer, Outstanding Interviewer

### C++后台开发精选课程

各位T族小鲜鹅们：  
欢迎加入TEG大家庭，为了帮助大家更好的胜任岗位工作，我们准备了C++后台开发系列精品课程，包含基础知识、进阶技能等学习资源，期待大家踊跃报名，有所收获！

### 课程安排

10月15日10:00-12:30	《性能调优与问题定位》	Harlylei(雷海林)
10月15日14:30-17:30	《进程编程》	Xaviergao(高楚智)
10月21日 9:30-12:30	《从C++98到C++11》	Jeffreypu(蒲俊峰)
10月21日14:30-17:30	《网络编程》	Evanboboli(李坤)
10月27日 9:30-12:30	《宏和泛型编程》	Tzwang(王天舟)
10月28日10:30-12:30	《C++高性能并发》	Zalezhang(张栋)
10月28日14:30-17:30	《modernC++设计模式》	Jianhuapeng(彭建华)
11月17日 9:30-12:30	《C++重构》	Kevinzbzha(曹中彬)

通道面试官们严格把关人才质量，高标准严要求，为公司人才甄选做出了重要贡献，为答谢各位面试官的辛苦付出，基于以下几个维度，我们为表现优秀的通道面试官们准备了精美礼品，希望大家在2024年度继续为公司社招通道面试助力！

### 最勤勉面试官

#### 获奖名单

tzwang(王天舟) frankyang(杨繁) andrewhuang(黄东波)  
binglang(郎兵) danierdeng(邓民文)

#### 获得奖品

JBL LIP ESSENTIAL 2 旗舰款二代 无线蓝牙音箱



Participated in ICASSP as a speech recognition representative of Alibaba Search  
Division in 2017 ICASSP

**陈楦(岑雄)**

2016-12-22 14:34

ICASSP 2017 派遣函

共2个附件 (  参会报告.docx ) 查看附件

各位，

经集团CTO战略执行小组的评估，同意派遣你们代表集团参加2017年3月5日-9日在美国新奥尔良召开的ICASSP 2017会议。  
<http://www.ieee-icassp2017.org/>

—初敏（阿里云）  
—好知（阿里云）  
—王永强（阿里云）  
—坤承（阿里云）  
—空海（搜索）  
—铁轮（人工智能实验室）  
—落意（B2B）

●初敏 将作为此次参会的执行领队，统一协调带领大家建立会议钉钉群，安排门票、行程、住宿、听会分工、返程后报告/分享等事宜。

- 希望大家能在行前认真准备并广泛收集集团内团队关心的问题；
- 在会议期间彼此分工，各有侧重的了解、沟通相关领域研发/实践成果；
- 充分和参会人员进行交流，宣传阿里技术；
- 深入了解该领域的最新进展和各公司的情况，回来后积极向集团内同事进行成果分享；
- 挖掘和吸引优秀人才。

2013-2014Appointed as the NLP Technical Liaison for Taobao, related emails;

骆卫华(闻彰) 2014-6-4 19:47

大家好！

集团这边今年启动了算法的基础和平台建设，自然语言处理（NLP）的基础平台建设会作为重要方向之一重点推进。  
今天我先发一个号召令，后续期待大家的积极贡献、精诚合作。

这里先抛一下初步的想法供大家拍砖：

(1) 关于BU的接口人

BU	接口人	职责
搜索事业部	千诀 上乘	1. 负责梳理该BU在NLP方向做过的算法、项目 2. 负责收集该BU未来对NLP的算法和技术需求 3. 有人的出人，有力的出力
ICBU CBU	骆卫华	
阿里妈妈	雕侠	
淘宝	海青 空海 良镛	

Selected for the 2013 Yuhang District Thousand Talents Plan related emails:

HR服务中心 2015-3-4 10:57 1

收件人: 王天舟(空海)

【重要】2013年余杭千人计划首批住房补贴发放确认  
王天舟，羊年好！  
2013年余杭区“千人计划”重点产业紧缺高层次人才引进计划（简称余杭千人计划）首批安家补助款目前已走完线下邮件已经确认环节。  
如需和空再邮件确认下个人信息和获奖金额，如无误，请在今天下班前邮件回复我。  
全体确认完成后，我就在开始线上审批流程。线上完成后，财务会直接将首批款打到空的工资卡上，我也会再邮件提醒你，注意查收。

工号	姓名	公司	获奖类型	总款额	首次发放
5175	王天舟	阿里巴巴(中国)网络技术有限公司	2013年余杭千人计划(类)	10万	4万

HR服务中心 叶菁  
2015年3月4日

Rewards for writing image processing system for the China Chang'e Lunar Exploration

