

# Yan Zhiwen

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## EDUCATION

### National University of Singapore (NUS)

Aug 2022 – Present

- PhD Candidate, Computer Science (Thesis approved, oral defense pending)
- Research Interests: 3D computer vision, 3D reconstruction and generation, high performance computing

### National University of Singapore (NUS)

Aug 2018 – Jun 2022

- Bachelor of Engineering in Computer Engineering
- Current Cumulative Average Point (CAP): 4.88/5.0
- Relevant modules completed include 3D computer vision, intelligent robots, natural language processing

## TECHNICAL SKILLS

- Research expertise in 3D neural reconstruction, 3D generation and high-efficiency rendering
- Experienced in machine learning algorithm design and implementation (PyTorch, TensorFlow, JAX)
- Proficient in high-performance computing and low-level GPU programming (CUDA, parallel algorithms)
- Skilled in full-stack software development for web, mobile, and backend systems
- Familiar with programming in Python, C++, C, Java, C#, TypeScript, CUDA
- Strong foundation in probabilistic modeling, Bayesian inference, regression analysis, and Markov chains
- Knowledge of electronics design, MCU/SBC programming, and system-level communication

## PUBLICATIONS

### OD-NeRF: Efficient Training of On-the-Fly Dynamic Neural Radiance Fields (First Author)

- Proceedings of the International Conference on 3D Vision (3DV), 2025
- Proposed the first efficient on-the-fly dynamic neural radiance field for real-time reconstruction

### Multi-Scale 3D Gaussian Splatting for Anti-Aliased Rendering (First Author)

- Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024
- Proposed an innovative algorithm of 3D novel view synthesis under variable resolutions and distances

### NeRF-DS: Neural Radiance Fields for Dynamic Specular Objects (First Author)

- Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023
- Proposed a novel algorithm to generate novel views of specular objects under non-rigid motion

### 1000FPS+ Novel View Synthesis from End-to-End Opaque Triangle Optimization (First Author)

- Proposed a mesh primitive based end-to-end 3D reconstruction algorithm for efficient training, rendering, and seamless compatibility with a wide range of conventional graphics engines and physics simulations

### Animate124: Animating one image to 4d dynamic scene (Co-Author)

- Proposed a 4D generation algorithm from single image using multi-view video generation model and 2D-to-4D distillation

### Gnesf: Generalizable neural semantic fields (Co-Author)

- Proceedings of the 37th Conference on Neural Information Processing Systems (NeurIPS), 2023
- Proposed a pre-trained generalizable neural network for simultaneous geometry and semantic 3D predictions from multi-view images

## WORK EXPERIENCE

### Senior Researcher, Tencent (Beta Proxima) | Singapore

Mar 2026 – Present

- Created a 3D algorithm pipeline to extract camera trajectories, scenes point clouds, and character layouts from stylized generated video, accelerating UE level sequence production workflows from 1 day to 2 hours
- Developing a multi-modal AI Director agent framework that parses narrative screenplays to autonomously generate coherent UE level sequences, including character dynamics and continuous camera motion

- Founder and CEO, Mirror World** **Mar 2024 – Nov 2025**
- Developed a visual navigation software and event design platform based on large scale 3D reconstruction
  - Awarded by the Venture Initiation Program from NUS School of Computing and the National Graduate Research Innovation Program from National Research Foundation
- Research Assistant, National University of Singapore** **Jan 2021 – Jun 2022**
- Proposed and researched innovative algorithms to improve robustness of deep learning models under adversarial attacks
- Robotics Engineer Intern, Panasonic R&D Singapore** **Jan 2021 – Mar 2022**
- Conducted experiments on object localization and robot-object interaction algorithms
  - Created pipeline for robot & camera calibration, user interaction, path planning and execution
- Algorithm Intern, Yitu Technology** **Jun 2020 – Nov 2020**
- Researched and improved the existing English Tacotron Text-To-Speech(TTS) algorithm to a phoneme based multilingual TTS algorithm
  - Transformed the surveillance car plate recognizing algorithm with single character classification to OCR algorithm, with end-to-end tool and NPU compatibility
  - Finished the surveillance pedestrian shoe type and color classification task
- IoT & Electric Engineer Intern, Shanghai STEP Electric Cor, China** **May 2018 – Jul 2018**
- Prototyped an elevator car to cloud audio and video chat IoT solution, solving technical difficulties our company had faced for more than a year
  - Facilitated the development of computer vision algorithms on new robotic arm product of stacking and solar panel placement
- Publicity & Software Engineer Intern, TinkerTanker Pte Ltd, Singapore** **Mar 2018 – May 2018**
- Organized of TinkerTanker's first Open Day and in charge of relevant publicity matters, boosting sale and enrollment for summer 2018
  - Managed publicity and gave Micro:bit lessons in Ngee Ann Secondary School and Victoria School

## ACCOMPLISHMENTS AND PROJECTS

- National Graduate Innovation Program Final Round Awardee **Jul 2025**
- NUS School of Computing Venture Initiation Program Awardee **Mar 2024**
- NUS Research Achievement Award **Aug 2023**
- Singapore Airline AppChallenge 2019, **1<sup>st</sup> Prize** (team) **Oct 2019 – Oct 2019**
- Code:XtremeApps::2017, **2<sup>nd</sup> Prize** (team) **Jul 2017 – Jul 2017**
- National Olympiad in Informatics, **Bronze Medalist** **Mar 2017 – Mar 2017**
- National Business Analytics Case Competition, **2<sup>nd</sup> runner up** (team) **Feb 2017 – Feb 2017**
- **Guide App for Singapore International Science Challenge (SISC) 2017** (team) – a mobile app to replace traditional paper pamphlets for school events **Jan 2017 – Oct 2017**
- **Smart Attendance** (team) – a system to facilitate attendance taking in lectures through scanning QR code on mobile phones **Feb 2016 – Oct 2017**

## EXTRA-CURRICULAR ACTIVITIES

- Member, NUS Chinese Debate Team** **Aug 2018 - Jun 2022**
- Shanghai International Chinese Debate Competition, **Champion** (team) **Feb 2018 – Feb 2018**
- Member, NJC Western Dance Team** **Jan 2016 – Dec 2016**