

Zheng (Thomas) Tang

SENIOR DEEP LEARNING ENGINEER AT NVIDIA · UW PH.D. IN ECE · AI CITY CHALLENGE ORGANIZING COMMITTEE LEAD

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Summary

Senior Deep Learning Engineer at NVIDIA · Former Applied Scientist at Amazon ('19-'21) · UW Ph.D. in Electrical & Computer Engineering · Holder of 15 U.S. patents & author of 24 publications · Developed a multimodal fusion search agent for NVIDIA VSS Blueprint with live demo at GTC'26 · Prepared VANTAGE-Bench & TAR benchmarks, highlighted in the Cosmos 3 release at Computex'26 keynote · Led organization for AI City Challenges at CVPR, ICCV & ECCV engaging 2K+ teams · Senior Area Editor for IEEE T-CSVT · Finalist for two Best Paper Awards at ICPR'16

Education

University of Washington (UW)

PH.D. IN ELECTRICAL & COMPUTER ENGINEERING

Seattle, WA, USA

Sep. 2014 - Jun. 2019

- Advised by Prof. Jenq-Neng Hwang (IEEE Fellow), dissertation titled "Robust Video Object Tracking via Camera Self-Calibration"

University of Washington (UW)

M.S. IN ELECTRICAL ENGINEERING

Seattle, WA, USA

Sep. 2014 - Mar. 2016

- GPA: 3.83/4.0

Beijing University of Posts and Telecommunications & Queen Mary University of London

B.S. IN TELECOMMUNICATIONS ENGINEERING WITH MANAGEMENT (JOINT PROGRAMME)

Beijing, China

Sep. 2010 - Jun. 2014

- First Class Honours

Work Experience

NVIDIA

SENIOR DEEP LEARNING ENGINEER

Redmond, WA

May 2021 - PRESENT

- Developed a **multimodal fusion search agent** for **NVIDIA VSS Blueprint** & fine-tuned CLIP-based embedding models, with live demo at GTC'26
- Prepared **VANTAGE-Bench** & **TAR** benchmarks for physical AI VLM/LLM evaluation, highlighted in the **Cosmos 3** release at Computex'26 keynote
- Created a multi-sensor 3D perception system based on **Sparse4D** for the **Mega Omniverse Blueprint**, with demos at CES'25 & GTC'25 keynotes
- Integrated end-to-end training, inference, evaluation & TensorRT export pipelines for 7+ perception & embedding models in **NVIDIA TAO Toolkit**
- Generated synthetic data from **NVIDIA Omniverse**, style transfer & video gen models, with VLM/LLM-based auto-labeling to scale our datasets.
- Led organization of **AI City Challenges** at CVPR, ICCV & ECCV with 2K+ teams (40+ countries), releasing **PAISS** benchmark with 700K+ downloads

Amazon

APPLIED SCIENTIST

Seattle, WA

Jul. 2019 - May 2021

- Built and launched **Amazon One**, a palm-based biometric identity service for contactless payment, entry, age verification, and enterprise access
- Invented multi-modal sensing and adaptive enrollment/update methods for automated identity systems, resulting in **two U.S. patents** filed

NVIDIA

INTELLIGENT VIDEO ANALYTICS INTERN

Santa Clara, CA

Jun. 2018 - Mar. 2019

- Created **CityFlow**, a city-scale benchmark for multi-target multi-camera (MTMC) vehicle tracking and ReID, accepted to **CVPR'19 (Oral)**
- Proposed **PAMTRI**, a pose-aware multi-task network for vehicle ReID using highly randomized synthetic data, accepted to **ICCV'19**

University of Washington

RESEARCH ASSISTANT

Seattle, WA

Jun. 2015 - Jun. 2018

- Built clustering-based vehicle tracking and camera self-calibration, winning **Track 1** of the **2nd AI City Challenge Workshop** at **CVPR'18**
- Developed multi-camera tracking using visual and semantic features, winning **Track 3** of the **2nd AI City Challenge Workshop** at **CVPR'18**
- Developed a 3D human pose estimator enabling AR overlay in medical simulation under 6-DoF camera motion (funded by ArchieMD Inc.)
- Proposed evolutionary camera self-calibration, a finalist for **Best Scientific & Student Paper Awards** at **ICPR'16** (funded by Prism Skylabs)

Professional Services

IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT)

SENIOR AREA EDITOR

Remote

Jan. 2025 - PRESENT

AI City Challenge Workshops (CVPR, ICCV, ECCV)

ORGANIZING COMMITTEE LEAD

Remote

Jun. 2020 - PRESENT

Selected Publications

JOURNAL ARTICLES

The staged knowledge distillation in video classification: Harmonizing student progress by a complementary weakly supervised framework
Chao Wang, Zheng Tang
T-CSVT 34.8 (2024) pp. 6646–6660. 2024

WSSGCN: Wide sub-stage graph convolutional networks
Chao Wang, Zheng Tang, Hailu Xu
Neurocomputing 602 (2024) p. 128273. 2024

CONFERENCE PAPERS

The 9th AI City Challenge
Zheng Tang, Shuo Wang, David C. Anastasiu, Ming-Ching Chang, Anuj Sharma, Quan Kong, Norimasa Kobori, Munkhjargal Gochoo, Ganzorig Batnasan, Munkh-Erdene Otgonbold, Fady Alnajjar, Jun-Wei Hsieh, Tomasz Kornuta, Xiaolong Li, Yilin Zhao, Han Zhang, Subhashree Radhakrishnan, Arihant Jain, Ratnesh Kumar, Vidya N. Murali, Yuxing Wang, Sameer Satish Pusegaonkar, Yizhou Wang, Sujit Biswas, Xunlei Wu, Zhedong Zheng, Pranamesh Chakraborty, Rama Chellappa
Proc. ICCV Workshops, pp. 5467–5476, 2025, Honolulu, HI, USA

Radiance field learners as UAV first-person viewers
Liqi Yan, Qifan Wang, Junhan Zhao, Qiang Guan, Zheng Tang, Jianhui Zhang, Dongfang Liu
Proc. ECCV, pp. 88–107, 2024, Milan, Italy

PAMTRI: Pose-aware multi-task learning for vehicle re-identification using highly randomized synthetic data
Zheng Tang, Milind Naphade, Stan Birchfield, Jonathan Tremblay, William Hodge, Ratnesh Kumar, Shuo Wang, Xiaodong Yang
Proc. ICCV, pp. 211–220, 2019, Seoul, Korea

CityFlow: A city-scale benchmark for multi-target multi-camera vehicle tracking and re-identification
Zheng Tang, Milind Naphade, Ming-Yu Liu, Xiaodong Yang, Stan Birchfield, Shuo Wang, Ratnesh Kumar, David C. Anastasiu, Jenq-Neng Hwang
Proc. CVPR, pp. 8797–8806, 2019, Long Beach, CA, USA

Selected Patents

Subject re-identification using semantic attribute recognition
Sameer Satish Pusegaonkar, Zheng Tang, Yizhou Wang, Sujit Biswas, Yuxing Wang
U.S. Patent Application Publication No. 2026/0148533 A1, 2026

Multi-sensor subject tracking for monitored environments for real-time and near-real-time systems and applications
Zheng Tang, Sujit Biswas, Ganapathy Seshadri Cadungude Aiyer, Shuo Wang, Akshay Agrawal, Sameer Satish Pusegaonkar
U.S. Patent Application Publication No. 2025/0292414 A1, 2025

Multi-subject multi-camera tracking for high-density environments
Zheng Tang, Sujit Biswas, Ganapathy Seshadri Cadungude Aiyer, Shuo Wang, Akshay Agrawal, Sameer Satish Pusegaonkar
U.S. Patent Application Publication No. 2025/0095167 A1, 2025

Three-dimensional multi-camera perception systems and applications
Zheng Tang, Yizhou Wang, Orcun Cetintas, Sameer Satish Pusegaonkar, Ganapathy Seshadri Cadungude Aiyer, Shuo Wang, Akshay Agrawal, Sujit Biswas, Tim Meinhardt, Laura Leal-Taixe
U.S. Patent Application Publication No. 2025/0292431 A1, 2025

Utilizing sensor data for automated user identification
Zheng Tang, Prithviraj Banerjee, Manoj Aggarwal, Gerard Medioni
U.S. Patent No. 11,663,805 B1, 2023

Updating identification data in automated user-identification systems
Zheng Tang, Lior Zamir, Prithviraj Banerjee, Manoj Aggarwal, Gerard Medioni, Dilip Kumar
U.S. Patent No. 11,816,932 B1, 2023

Honors & Awards

2025	Invited Keynote Speaker , UrbanAI Workshop at NeurIPS’25	San Diego, CA, USA
2024	Best Presentation Award & Best Poster Award , NTECH’24 (NVIDIA’s Internal Tech Conference)	Santa Clara, CA, USA
2022	T-CSVT Best Associate Editor Award , IEEE Circuits and Systems Society (CASS)	Remote
2019	People’s Choice Award , Code for the Kingdom (C4TK) Hackathon	Seattle, WA, USA
2016	Finalist for Best Scientific Paper Award & Best Student Paper Award , ICPR’16	Cancún, México

Skills

Programming	Python (expert), C/C++ (proficient), Java (proficient), JavaScript (proficient), MATLAB (expert), $\LaTeX$ (expert)
Frameworks & Tools	Cursor/Claude Code/OpenAI Codex (expert), PyTorch (expert), TensorRT (expert), Omniverse/Isaac Sim (expert)
Languages	English (proficient), Mandarin (native), Cantonese (native), Spanish (elementary)