

Zheng (Thomas) Tang

SENIOR DEEP LEARNING ENGINEER AT NVIDIA · EXPERT IN COMPUTER VISION AND MACHINE LEARNING

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Summary

Senior Deep Learning Engineer at NVIDIA · Former Applied Scientist at Amazon ('19-'21) · Ph.D. in Electrical & Computer Engineering from UW · Holder of 9 U.S. patents & author of 25 publications · Tech Lead of Metropolis Multi-Camera Tracking AI Workflow, integrated into the Mega Omniverse Blueprint and showcased in CES'25 & GTC'25 keynotes · Senior Area Editor for IEEE T-CSVT · Organizing Committee Lead for AI City Challenges at CVPR · Led winning team of the 2nd AI City Challenge at CVPR'18 · Finalist for two Best Student 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

Queen Mary University of London (QMUL)

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

London, UK

Sep. 2010 - Jun. 2014

- First Class Honours

Beijing University of Posts and Telecommunications (BUPT)

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

Beijing, China

Sep. 2010 - Jun. 2014

Work Experience

NVIDIA

SENIOR DEEP LEARNING ENGINEER, METROPOLIS

Redmond, WA

May 2021 - PRESENT

- Led the development of a real-time location system (**RTLS**) for spatial AI agents, leveraging Sparse4D 3D perception and GNN-based tracking
- Integrated RTLS in **Mega Omniverse Blueprint**, with digital twin demos (warehouse & Foxconn factory) showcased at CES'25 & GTC'25 keynotes
- Proposed **MCLT** 3D perception framework with NVIDIA Research, achieving state-of-the-art on both synthetic and real-world benchmarks
- Led organization of the **AI City Challenges** at CVPR & ICCV, releasing Omniverse-generated 3D perception data in NVIDIA's Hugging Face

Amazon

APPLIED SCIENTIST, AMAZON ONE

Seattle, WA

Jul. 2019 - May 2021

- Part of the core research team that built and launched **Amazon One**, a palm-based identity service for payment, entry, and more
- Invented a multi-modal sensor architecture and adaptive update schema for automated authentication systems with **two U.S. patents** filed

NVIDIA

INTELLIGENT VIDEO ANALYTICS INTERN

Santa Clara, CA

Jun. 2018 - Mar. 2019

- Created **CityFlow**, a large-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**
- Proposed evolutionary camera self-calibration from tracking, a finalist for **2 Best 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 at IEEE Conf. Comput. Vis. Pattern Recognit. (CVPR)

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, 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

Spatio-temporal alignment of synthetically generated content using multimodal models
Ming-Yu Liu, Pooya Jannaty, Jingyi Jin, Lyne Tchammi Petse, Anqi Li, Zheng Tang, Yuxing Wang, Yizhou Wang, Sujit Biswas, Ratnesh Kumar
U.S. Patent Application No. 19/294,840 (Pending), 2025

3D perception and multi-sensor object tracking for monitored environments using machine learning
Zheng Tang, Ganapathy Seshadri Cadungude Aiyer, Kartikay Thakkar, Yun He, Akshay Agrawal, Sameer Satish Pusegaonkar, Yizhou Wang, Yuxing Wang, Cheng-Yen Yang, Tim Meinhardt, Orcun Cetintas, Benjamin Missaoui, Laura Leal-Taixe, Sujit Biswas
U.S. Patent Application No. 19/310,767 (Pending), 2025

3D multi-sensor perception and object tracking
Yizhou Wang, Sameer Satish Pusegaonkar, Vishal Kumar, Yuxing Wang Chetan Sethi, Ganapathy Seshadri Cadungude Aiyer, Alice Li, Yun He, Kartikay Thakkar, Zheng Tang, Swapnil Rath, Bhushan Rupde, Sujit Biswas
U.S. Patent Application No. 19/079,809 (Pending), 2025

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 No. 18/605,121 (Pending), 2024

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 No. 18/898,120 (Pending), 2024

Honors & Awards

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
2018	Winner of Track 1 (Traffic Flow Analysis) , 2nd AI City Challenge Workshop in CVPR’18	Salt Lake City, UT, USA
2018	Winner of Track 3 (Multi-camera Vehicle Detection & ReID) , 2nd AI City Challenge Workshop in CVPR’18	Salt Lake City, UT, USA
2016	Finalist in IBM & Intel Best Track 3 Student Paper Awards , ICPR’16	Cancún, México

Skills

Programming	Python (expert), C/C++ (proficient), Java (proficient), JavaScript (proficient), MATLAB (expert), \LaTeX (expert)
Frameworks & Tools	PyTorch (expert), TensorFlow (expert), Git (expert), Docker (expert), OpenCV (expert), Kafka (expert), Unity (proficient)
Languages	English (proficient), Mandarin (native), Cantonese (native), Spanish (elementary)