Yi-Ting Shen

● Email: ytshen@umd.edu ● Phone: (+1) 240-825-6608

● Website: https://dennisshen.github.io/

RESEARCH INTERESTS

Deep Learning/ Synthetic Data Generation/ Human-Centric & Aerial Computer Vision/ Multimodal Learning

EDUCATION

University of Maryland, College Park (UMCP)   College Park, MD, USA

- Ph.D., Electrical and Computer Engineering   Aug. 2020 - Present
  - Advisor: Prof. Shuvra S. Bhattacharyya

National Taiwan University (NTU)   Taipei, Taiwan

- M.S., Graduate Institute of Electronics Engineering   Sep. 2016 - Jan. 2019
  - Advisor: Prof. Liang-Gee Chen
- B.S., Electrical Engineering   Sep. 2012 - June 2016

PUBLICATIONS

PREPRINTS

[1] **Yi-Ting Shen***, Sungmin Eum*, Doheon Lee, Rohit Shete, Chiao-Yi Wang, Heesung Kwon, and Shuvra S. Bhattacharyya, "AutoComPose: Automatic Generation of Pose Transition Descriptions for Composed Pose Retrieval Using Multimodal LLMs", *Submitted*. (* equal contribution)

[2] Jinsub Yim, Hyungtae Lee, Sungmin Eum, **Yi-Ting Shen**, Yan Zhang, Heesung Kwon, and Shuvra S. Bhattacharyya, "SynPlay: Importing Real-world Diversity for a Synthetic Human Dataset", *Submitted*.

[3] **Yi-Ting Shen***, Hyungtae Lee*, Heesung Kwon, and Shuvra S. Bhattacharyya, "Diversifying Human Pose in Synthetic Data for Aerial-view Human Detection", *Submitted*. (* equal contribution)

[4] Hyungtae Lee, Yan Zhang, **Yi-Ting Shen**, Heesung Kwon, and Shuvra S. Bhattacharyya, "Exploring the Impact of Synthetic Data for Aerial-view Human Detection", *Submitted*.

CONFERENCES

[5] Chiao-Yi Wang, Faranguisse Kakhi Sadrieh, **Yi-Ting Shen**, Giovanni Oppizzi, Li-Qun Zhang, and Yang Tao, "Real-Time Privacy-Preserving Fall Risk Assessment with a Single Body-Worn Tracking Camera," *The IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**)*, 2024.

[6] **Yi-Ting Shen***, Hyungtae Lee*, Heesung Kwon, and Shuvra S. Bhattacharyya, "Progressive Transformation Learning for Leveraging Virtual Images in Training", *The IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**)*, 2023. (* equal contribution) **[Highlight]**

[7] Eung-Joo Lee, **Yi-Ting Shen**, Lei Pan, Zhu Li, and Shuvra S. Bhattacharyya, "DCT-based Hyperspectral Image Classification on Resource-Constrained Platforms", *11th Workshop on Hyperspectral Imaging and Signal Processing: Evolution in Remote Sensing (**WHISPERS**)*, 2021.

[8] Keng-Chi Liu, **Yi-Ting Shen**, Jan P Klopp, and Liang-Gee Chen, "What Synthesis is Missing: Depth Adaptation Integrated with Weak Supervision for Indoor Scene Parsing", *The IEEE/CVF International Conference on Computer Vision (**ICCV**)*, 2019.

[9] Keng-Chi Liu*, **Yi-Ting Shen***, and Liang-Gee Chen, "Simple Online and Realtime Tracking with Spherical Panoramic Camera", *The IEEE International Conference on Consumer Electronics (**ICCE**)*, 2018. (* equal contribution)

[10] **Yi-Ting Shen**, Guan-Lin Liu, Sih-Sian Wu, and Liang-Gee Chen, "3D Perception Enhancement in Autostereoscopic TV by Depth cue for 3D Model Interaction", *The IEEE International Conference on Consumer Electronics (**ICCE**)*, 2016.

JOURNALS

[11] Chiao-Yi Wang, ADP Guru Nandhan, **Yi-Ting Shen**, Wei-Yu Chen, Sandip Sharan Senthil Kumar, Alexander Long, Alan Williams, Gudjon Magnusson, Allen Pattillo, Don Webster, Matthew Gray, Miao Yu, and Yang Tao, "ShellCollect: A Framework for Smart Precision Shellfish Harvesting Using Data Collection Path Planning", *IEEE Access*, 12, 177829-177843.

[12] Chiao-Yi Wang, Faranguisse Kakhi Sadrieh, **Yi-Ting Shen**, Shih-En Chen, Sarah Kim, Victoria Chen, Achyut Raghavendra, Dongyi Wang, Osamah Saeedi, and Yang Tao, "MEMO: dataset and methods for robust multimodal retinal image registration with large or small vessel density differences", *Biomedical Optics Express (BOEx)*, 15(5), 3457-3479.

[13] **Yi-Ting Shen**, Yaesop Lee, Heesung Kwon, Damon M Conover, Shuvra S. Bhattacharyya, Nikolas Vale, Joshua D Gray, G Jeremy Leong, Kenneth Evensen, and Frank Skirlo, "Archangel: A Hybrid UAV-based Human Detection Benchmark with Position and Pose Metadata", *IEEE Access*, 11, 80958-80972.

RESEARCH EXPERIENCE

The Maryland DSPCAD Research Group, UMCP College Park, MD, USA
Research Assistant Aug. 2021 - Present
Advisor: Prof. Shuvra S. Bhattacharyya

- Harnessing multimodal LLMs for composed pose retrieval [1]
- Utilizing synthetic data for UAV-based scene understanding [2]-[4], [6], [13]
- Hyperspectral image classification on resource-constrained platforms [7]

Digital Signal Processing IC Lab (DSPIC Lab), NTU Taipei, Taiwan
Research Assistant Sep. 2016 - Jan. 2019
Advisor: Prof. Liang-Gee Chen

- Weakly-supervised indoor scene parsing using depth adaptation [8]
- Multi-object tracking with a 360° camera [9]
- Self-supervised learning of depth for traversability estimation [thesis]

Digital Signal Processing IC Lab (DSPIC Lab), NTU Taipei, Taiwan
Undergraduate Research Sep. 2014 - June 2016
Advisor: Prof. Liang-Gee Chen

- Stereo matching on FPGA/ Depth cues for autostereoscopic 3DTV [10]

TEACHING and WORKING EXPERIENCE

University of Maryland, College Park College Park, MD, USA
Teaching Assistant, ENEE 446 Digital Computer Design Jan. 2021 - May 2021

MediaTek Hsinchu, Taiwan
R&D Intern May 2016 - Aug. 2016

- Acceleration and bandwidth reduction of decoder side pattern-based motion vector derivation (PMVD)

SKILL

- **Programming**: Python, PyTorch, TensorFlow, C, C++, OpenCV, Verilog, LaTex
- **Languages**: Mandarin (Native), English (GRE: V-157 Q-169 AWA-3.5/ TOEFL: 102)

AWARD and HONOR

- Highlight Paper, CVPR 2023 (10% of accepted papers, 2.5% of submissions) June 2023
- Award for design complete, Cell-Based Digital Circuit Category, 2018 IC Design Contest Sep. 2018
- Award for excellent, Problem E, International CAD Contest at ICCAD Dec. 2015