Yucheng Tang

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Vanderbilt University, Nashville, TN, U.S.

Education

08/2018---Present: Vanderbilt University, *TN, U.S.*
Major: Electrical Engineering — Doctoral Program, Expected: Spring, 2022

08/2016---05/2018: New York University, *NY, U.S.*
Major: Electrical Engineering — Degree: Master of Science

09/2011---07/2015: Tianjin University, *Tianjin, China*
Major: Electrical Engineering and Automation — Degree: Bachelor of Engineering

Academic Positions

06/2020 – Present **Lecturer & Affiliated Teaching Member**, Vanderbilt University, Nashville, TN.
Course: CS1104, Department of Computer Science.

07/2018 – Present **Graduate Research &Teaching Assistant**, Vanderbilt University, Nashville, TN.
Medical-image Analysis and Statistical Interpretation Lab, Advisor: Dr. Bennett A. Landman.

Research Interests

07/2018 – Present Medical Image Analysis, Machine Learning, Biomedical Data Representation, Computer Vision

Research Employments

07/2018 – present **Research Assistant**, Vanderbilt Institute of Surgery and Engineering, *Nashville, TN U.S.*
Supervisor: Dr. Bennett A. Landman

06/2017 – 05/2018 **Research Intern**, SIEMENS Healthineers, *Princeton, NJ, U.S.*
Supervisor: Dr. Kevin S. Zhou

02/2017 – 06/2017 **Research Assistant**, New York University. *New York City, U.S*
Supervisor: Dr. Ivan Selesnick & Dr. Yao Wang

Awards

2020 SPIE Medical Imaging RFW Best Paper Award (finalist)
2020 SPIE Image Processing Best Poster Award (coauthor)
2020 SPIE Image Processing Best Student Paper Award (coauthor)
2019 IBM Graduate Fellow, Vanderbilt University
2014 "Excellent Student Cadre", Tianjin University

Teaching Experience

2020 **CS 1104: Programming and Problem Solving with Python**, Vanderbilt University.
Instructor

2020 **CS 8395: Deep Learning in Medical Image Computing**, Vanderbilt University.
Guest Lecturer

2019 **Vanderbilt Summer Research Programs**, Vanderbilt University.
Mentor

Publications and Patents

Journal

1. **Y. Tang**, R. Gao, S. Han, Y. Chen, D. Gao, V. Nath, C. Bermudez, M. R. Savona, R. G. Abramson, S. Bao, I. Lyu, Y. Huo and B. A. Landman, "Boosted Unsupervised Learning with Blind Robust Supervision and Correlation Mappings", *IEEE Transactions on Medical Imaging*, 2020. (on decision of minor revision)
2. **Y Tang,** R. Gao, S. Han, Y. Chen, D. Gao, V. Nath, C. Bermudez, M. R. Savona, R. G. Abramson, S. Bao, I. Lyu, Y. Huo and B. A. Landman, "High-resolution 3D Abdominal Segmentation with Random Patch Network Fusion", *Medical Image Analysis*, 2020. (on decision of minor revision)
3. R. Gao, **Y. Tang**, K. Xu, Y. Huo, S. Bao, S. L. Antic, E. S. Epstein, S. Deppen, A. B. Paulson, K. L. Sandler, P. P. Massion, and B. A. Landman, "Time-Distanced Gates in Long Short-Term Memory Networks", *Medical Image Analysis*, 2020.
4. **Y. Tang**, R. Gao, H. H. Lee, Y. Chen, D. Gao, C. Bermudez, S. Bao, Y. Huo, B. V. Savoie and B. A. Landman, "Phase Identification for Dynamic CT enhancements with Generative Adversarial Network", *Medical Physics*, 2020.
5. R. Gao, **Y. Tang,** Y. Huo, S. Bao, S. L. Antic, E. S. Epstein, S. Deppen, A. B. Paulson, K. L. Sandler, P. P. Massion, B. A. Landman, "Multi-path xD recurrent neural networks for collaborative image classification", *Neurocomputing*, 2020
6. **Y. Tang,** R. Gao, Y. Chen, D. Gao, M. R. Savona, R. G. Abramson, S. Bao, Y. Huo and B. A. Landman, "Learning from Dispersed Manual Annotations with an Optimized Data Weighting Policy", *Journal of Medical Imaging*, 2020.
7. Y. Huo, **Y. Tang**, Yunqiang Chen, D. Gao, S. Han, N. Zhou, S. Bao, S. De, J. G. Terry, J. J. Carr, R. G Abramson, and B. A. Landman, "Stochastic Tissue Window Normalization of Deep Learning on CT ", *Journal of Medical Imaging,* 2019.

Selective Conference

1. **Y. Tang**, H. H. Lee, Y. Xu, O. Tang, Y. Chen, D. Gao, S. Han, R. Gao, C. Bermudez, M. R. Savona, R. G. Abramson, Y. Huo, B. A. Landman, "Contrast Phase Classification with a Generative Adversarial Network", *SPIE IP:MI,* 2020. (best paper award finalist)
2. **Y. Tang,** R. Gao, H. H. Lee, Q. S. Wells, A. Spann, J. G. Terry, J. C., Y. Huo, S. Bao and B. A. Landman, "Prediction of Type II Diabetes Onset with Computed Tomography and Electronic Medical Records", *MICCAI CLIP*, 2020.
3. H. Liao, **Y. Tang**, F. Gareth, J. Luo, and Kevin S. Zhou, "More knowledge is better: Cross-modality volume completion and 3d+ 2d segmentation for intracardiac echocardiography contouring", *MICCAI*, 2018.
4. L. Hao, S. Bao, **Y. Tang**, R. Gao, P. Parvathaneni, J. A. Miller, W. Voorhies, J. Yao, S. A. Bunge, K. S. Weiner, B. A. Landman, and I. Lyu, "Automatic Labeling of Cortical Sulci using Convolutional Neural Networks in a Developmental Cohort", *IEEE International Symposium on Biomedical Imaging (ISBI)*, 2020
5. R. Gao, L. Li, Y. Huo, **Y. Tang**, S. L. Antic, E. S. Epstein, S. Deppen, A. B. Paulson, K. L. Sandler, P. P. Massion, and B. A. Landman, "Deep Multi-task Prediction of Lung Cancer and Cancer-free Progression from Censored Heterogenous Clinical Imaging", *SPIE IP:MI*, 2020. (best student paper award)

Conference

1. **Y. Tang**, R. Gao, H. H. Lee, B. V. Savoie, S. Bao, Y. Huo, A. Fogo, R. Harris, M. deCaestecker, J. Spraggins, and B. A, Landman, "Renal Cortex, Medulla, Pelvis Segmentation on Arterial Phase CT Images with Random Patch-based Networks", *SPIE, Medical Imaging*, 2021.
2. S. Bao, S. Chiron, **Y. Tang**, C. N. Heiser, A. N. Southard-Smith, H. H. Lee, M. A. Ramirez, Y. Huo, M. K. Washington, E. A. Scoville, J. T. Roland, Q. Liu, K. S. Lau, K. T. Wilson, L. A. Coburn, and B. A. Landman, "A cross-platform informatics system for the Gut Cell Atlas: integrating from clinical, anatomical and histological data", *SPIE, Medical Imaging*, 2021.
3. K. Xu, R. Gao, M. S. Khan, S. Bao, **Y. Tang**, S. A. Deppen, Y. Huo, K. L. Sandler, P. P. Massion, M. P. Heinrich, and B. A. Landman, "Development and characterization of a chest CT atlas", *SPIE, Medical Imaging*, 2021.
4. R. Gao, **Y. Tang**, K. Xu, M. N. Kammer, S. L. Antic, S. Deppen, K. L. Sandler, P. P. Massion, Y. Huo, and B. A. Landman, "Deep Multi-path Network Integrating Incomplete Biomarker and Chest CT Data for Evaluating Lung Cancer Risk", *SPIE, Medical Imaging*, 2021.

5. H. H. Lee, **Y. Tang**, K. Xu, S. Bao, A. B. Fogo, R. Harris, M. P. de Caestecker, M. Heinrich, J. Spraggins, Y. Huo, and B. A, Landman, "Construction of a Multi-Phase Contrast Computed Tomography Kidney Atlas", *SPIE, Medical Imaging*, 2021.
6. C. Luo, J. G. Terry, **Y. Tang**, K. Xu, P. P. Massion, B. A. Landman, J. J. Carr, and Y. Huo, "Measure Partial Liver Volumetric Variations from Paired Inspiratory-expiratory Chest CT Scans", *SPIE, Medical Imaging*, 2021.
7. O. Tang, Y. Xu, **Y. Tang***, H. H. Lee, Y. Chen, D. Gao, S. Han, R. Gao, M. R. Savona, R. G. Abramson, Y. Huo, and B. A. Landman, "Validation and Optimization of Multi-Organ Segmentation on Clinical Imaging Archives", *SPIE IP:MI,* 2020.
8. Y. Xu*, O. Tang*, **Y. Tang****, H. H. Lee, Y. Chen, D. Gao, S. Han, R. Gao, M. R. Savona, R. G. Abramson, Y. Huo, and B. A. Landman, "Outlier Guided Optimization of Abdomen Segmentation", *SPIE IP:MI*, 2020.
9. H. H. Lee, **Y. Tang***, Y. Xu, O. Tang, Y. Chen, D. Gao, S. Han, R. Gao, M. R. Savona, R. G. Abramson, Y. Huo, and B. A. Landman, "Semi-Supervised Multi-Organ Segmentation through Quality Assurance Supervision", *SPIE IP:MI*, 2020.
10. Y. Yang, R. Gao, **Y. Tang**, S. L. Antic, S. Deppen, Y. Huo, K. L. Sandler, P. P. Massion, and B. A. Landman, "Internal-transfer Weighting of Multi-task Learning for Lung Cancer Detection", *SPIE IP:MI*,2020.
11. **Y. Tang**, Y. Huo, Y. Xiong, H. Moon, A. Assad, T. K. Moyo, M. R. Savona, R. G. Abramson, and B. A. Landman, "Improving Splenomegaly Segmentation by Learning from Heterogeneous Multi-Source Labels", *SPIE Medical Imaging, Image Processing*, 2019.
12. R. Gao, Y. Huo, S. Bao, **Y. Tang,** S. L. Antic, E. S. Epstein, A. B. Balar, S. Deppen, A. B. Paulson, K. L. Sandler, P. P. Massion and B. A. Landman, "Distanced LSTM: Time-Distanced Gates in Long Short-Term Memory Models for Lung Cancer Detection", *In International Workshop on Machine Learning in Medical Imaging*, 2019.

Patents:

1. Three-Dimensional Segmentation from Two-Dimensional Intracardiac Echocardiography Imaging (US Patent App. 16/130,320)
2. Collaborative Volume Completion and Contour Detection System For Intracardiac. (US Patent App. 62/634,935)

External Service

Journal Reviewing:

IEEE Transactions on Medical Imaging (TMI)

Medical Image Analysis (MedIA)

PLOS ONE

Conference Reviewing:

MICCAI 2020 International Conference on Medical Image Computing & Computer Assisted Intervention

Student Mentoring

BS, CS, Vanderbilt U & Google, Yiyuan Yang, **Topic:** Validation on Splenomegaly with volumetric Measurements

BS, CS, Vanderbilt U, Olivia Tang, **Topic:** Abdominal Segmentation on Clinical Imaging Archive

BS, CS & Neural Science, Vanderbilt U, Yuchen Xu, **Topic:** Abdominal Segmentation on Validation of outlier Data

BS, CS & math, Vanderbilt U, Canwen Jiao, **Topic:** Aorta segmentation and Analysis

Presentation and Talks

Conference Oral Presentation

2020 **SPIE**, Houston, TX, **Title:** Contrast Phase Classification with a Generative Adversarial Network.

2019 **SPIE**, San Diego, CA, **Title:** Improving Splenomegaly Segmentation by Learning from Heterogeneous Multi-Source Labels.

Invited Talk

2019 **12 Sigma Technologies**, **Title:** Toward the practical utilization of quantitative imaging biomarkers: Combining Deep Learning with Anatomical Context Network.