Riqiang Gao, Ph.D. student

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Research Interest

2015–now I am broadly interested in machine learning and computer vision, with a focus on medical imaging recently. I have focused on face recognition during the master period in Tsinghua. I'm exploring lung cancer risk estimation with imperfect longitudinal multimodal data in Vanderbilt, advised by Prof. Bennett Landman, and collaborating clinical experts Dr. Pierre Massion & Dr. Kim Sandler.

Education

Degree	Major	University	Period	GPA (rank)
B.E.	Communication Engineering	Central South University	09/2011 – 07/2015	90.5 (2 / 163)
M.E.	Electronics Engineering	Tsinghua University	09/2015 – 07/2018	3.6 (2 / 54)
Ph.D.	Computer Science	Vanderbilt University	08/2018 – Now	3.8 (N/A)

Selected Honors & Awards

2013 First Prize in National Mathematics Competitions (not-math-major) of China (Rank 17 in China, Rank 1 in Hunan Province, **most prestigious,** <**0.02%**)

2014 Meritorious in Mathematical Contest in Modeling of USA (team-leader) (10%)

Pacemaker to Merit Student of CSU (30 selected university-wide, **prestigious,** < **0.5%**)

2015 Member of Outstanding Deeds Report (10 selected university-wide, **prestigious, 0.1%**)

Outstanding Graduate in Hunan Province, China (2%)

2020 RFW Best Student Paper Award Finalist, SPIE-MI (first-author) (**prestigious**, < 2%)

Honorable Mention Poster Award, SPIE-MI (Mentor & Presenter) (< 5%)

2012 – now Scholarships including Outstanding Scholarship (CSU, <1%), National Scholarship (CSU, < 2%), First Prize Scholarship (THU, 10%), University Graduate Fellowship (VU).

Research Experiences

09/2015 – 06/2018 Research Assistant, *Face Recognition*, Tsinghua University

06/2017 – 09/2017 Research Internship, *Clothes Detection*, YouTu X-Lab of Tencent

03/2018 – 06/2018 Research Internship, *Whole Slide Image Analysis*, Imsight Technology

08/2018 – Now Research Assistant, *Lung Cancer Risk Estimation*, Vanderbilt University

Research Publications (Contact Author *)

Journal Articles

1. **Gao, Riqiang**, Huo, Y., Bao, S., Tang, Y., Antic, S. L., Epstein, E. S., Deppen, S., Paulson, A. B., Sandler, K. L., Massion, P. P., & Landman, B. A. (2020). Multi-path xd recurrent neural networks for collaborative image classification. *Neurocomputing*.

2. **Gao, Riqiang**, Tang, Y., Khan, M. S., Xu, K., Huo, Y., Antic, S. L., Epstein, E. S., Deppen, S., Paulson, A. B., Sandler, K. L., & Landman, B. A. (2020). Validation of cancer risk estimation combining lung screening ct with clinical data elements. *Radiology (ready for submission)*.

3. **Gao, Riqiang**, Tang, Y., Xu, K., Huo, Y., Bao, S., Antic, S. L., Epstein, E. S., Deppen, S., Paulson, A. B., Sandler, K. L., & Landman, B. A. (2020). Time-distanced gates in long short-term memory networks. *Medical Image Analysis*.

4. **Gao, Riqiang**, Yang, F., Yang, W., & Liao, Q. (2018). Margin loss: Making faces more separable. *IEEE Signal Processing Letters*, *25*(2), 308–312.

5. Yang, F., Yang, W., **Gao, Riqiang**, & Liao, Q. (2017). Discriminative multidimensional scaling for low-resolution face recognition. *IEEE Signal Processing Letters*, *25*(3), 388–392.

6. Tang, Y., **Gao, Riqiang**, Han, S., Chen, Y., Gao, D., Nath, V., Bermudez, C., Savona, M. R., Abramson, R. G., Bao, I., Shunxing Lyu, Huo, Y., & Landman, B. A. (2020a). High-resolution 3d abdominal segmentation with random patch network fusion. *Medical Image Analysis*.

Conference Proceedings

1. **Gao, Riqiang**, Tang, Y., Xu, K., Huo, Y., Sandler, K. L., Massion, P. P., Blume, J. D., Lasko, T. A., & Landman, B. A. (2021). Characterizing imputation for lung cancer risk estimation with image and non-image data. Under Review.

2. **Gao, Riqiang**, Tang, Y., Xu, K., Kammer, M. N., Antic, S. L., Deppen, S., Sandler, K. L., Massion, P. P., Huo, Y., & Landman, B. A. (2021). Deep multi-path network integrating incomplete biomarker and chest ct data for evaluating lung cancer risk, In *Medical imaging: Image processing*. SPIE **(oral)**.

3. **Gao, Riqiang**, Li, L., Tang, Y., Antic, S. L., Paulson, A. B., Huo, Y., Sandler, K. L., Massion, P. P., & Landman, B. A. (2020). Deep multi-task prediction of lung cancer and cancer-free progression from censored heterogenous clinical imaging, In *Medical imaging: Image processing*. SPIE **(RFW best paper finalist)**.

4. Yang, Y., **Gao, Riqiang ***, Tang, Y., Antic, S. L., Deppen, S., Huo, Y., Sandler, K. L., Massion, P. P., & Landman, B. A. (2020). Internal-transfer weighting of multi-task learning for lung cancer detection, In *Medical imaging: Image processing*. SPIE **(Honorable Mentioned Poster, * denotes Mentor)**.

5. **Gao, Riqiang**, Huo, Y., Bao, S., Tang, Y., Antic, S. L., Epstein, E. S., Balar, A. B., Deppen, S., Paulson, A. B., Sandler, K. L. Et al. (2019). Distanced lstm: Time-distanced gates in long short-term memory models for lung cancer detection. MICCAI-MLMI **(oral)**.

6. **Gao, Riqiang**, Yang, W., Hu, X., & Liao, Q. (2016). Two-stage patch-based sparse multi-value descriptor for face recognition, In *Visual communications and image processing (vcip)*, IEEE.

7. **Gao, Riqiang**, Yang, W., Sun, X., Li, H., & Liao, Q. (2015). Locally collaborative representation in similar subspace for face recognition, In *Chinese conference on biometric recognition*. Springer.

Mentored Undergraduates

01/2019 - 06/2019	Yiyuan Yang, Vanderbilt Undergraduate, now in Facebook.
07/2019 - 09/2019	Lingfeng Li, Vanderbilt Undergraduate.
08/2019 - 12/2019	Xinmeng Zhang, Vanderbilt Undergraduate.