

福州大学 物理与信息工程学院



童同

研究员

童同，入选第四批国家“万人计划”青年拔尖人才，福建省闽江特聘教授和百人计划专家，福州大学智能康复研究院副院长。英国帝国理工大学计算机专业博士毕业，师从英国两院院士（皇家工程院和医学科学院）Daniel Rueckert教授，博士毕业后在美国哈佛大学医学院—麻省总医院担任Research Fellow，开展医学影像分析与计算机辅助诊断的前沿技术研究。目前在国际期刊和会议上发表论文50余篇，近五年以第一作者发表在中科院SCI二区以上文章7篇，CCF-A类会议一篇，英文著书章节一部，论文近五年已被引用1500余次（谷歌引用统计），H-index是15，同时还申请30余项国家专利。目前担任Frontiers in Neuroscience (中科院SCI二区)等期刊编委，是多个国际会议的程序委员会委员，同时是20多种SCI期刊的审稿人，曾多次受邀参加大型国际学术会议进行口头汇报。

主要研究方向为人工智能与医学影像分析，承担多项海内外科研项目，主持科研经费600万元以上。

欢迎有志于科研的优秀本科生、研究生和博士生加入团队。

招生专业：

学术型硕士：信号与信息处理、通信与信息系统；

专业型硕士：电子信息工程、集成电路工程；

学术型博士：通信与信息系统

实验室地址：福州大学国家大学科技园阳光科技楼南620；邮箱：ttravelton@gmail.com

更多研究课题请参考 <https://scholar.harvard.edu/ttong>

一、教育经历

- 1、2011-2014 博士 英国帝国理工学院 计算机专业
- 2、2008-2011 硕士 中国科技大学 生物医学工程专业
- 3、2004-2008 本科 北京理工大学 生物医学工程专业

二、工作经历

- 1、2014-2015 英国帝国理工学院 Research Associate
- 2、2016 美国哈佛医学院/麻省总医院 Research Fellow

作为核心成员参与了欧盟第七框架项目、美国国立卫生研究院R01和国家自然科学基金委等多个国家级科研项目，总经费达6100万。特别是在英国四年多的学习和工作期间，作为核心人员参与了《From Patient Data to Personalised Healthcare in Alzheimer's Disease》和《From Patient Data to

Clinical Diagnoses in Neurodegenerative Diseases》两项欧盟第七框架项目，每个项目资助金额都约400万欧元，在基于机器学习的图像分割、多模态影像的疾病辅助诊断和预测等方向取得了相关研究成果。

三、期刊文章

- 1、Tong Tong, Iman Aganj, Tian Ge, Jonathan R Polimeni, Bruce Fischl. Functional Density and Edge Maps: Characterizing Functional Architecture in Individuals and Improving Cross-subject Registration. *NeuroImage*, 2017.
- 2、Lisa M. Koch, Martin Rajchl, Wenjia Bai, Christian F. Baumgartner, Tong Tong, Jonathan Passerat-Palmbach, Paul Aljabar, Daniel Rueckert. Multi-atlas segmentation using partially annotated data: Methods and annotation strategies. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2017.
- 3、Antti Tolonen, Hanneke F. M. Rhodius-Meester, Marie Bruun, Juha Koikkalainen, Frederik Barkhof, Afina W. Lemstra, Teddy Koene, Philip Scheltens, Charlotte E. Teunissen, Tong Tong, Ricardo Guerrero, Andreas Schuh, Christian Ledig, Marta Baroni, Daniel Rueckert, Hilka Soininen, Anne M. Remes, Gunhild Waldemar, Steen Gregers Hasselbalch, Patrizia Mecocci, Wiesje M. van der Flier, Jyrki Lötjönen. Data-driven differential diagnosis of neurodegenerative diseases. *Frontiers in Aging Neuroscience* 2018.
- 4、Tong Tong, Christian Ledig, Ricardo Guerrero, Andreas Schuh, Juha Koikkalainen, Antti Tolonen, Hanneke Rhodius, Frederik Barkhof, Betty Tijms, Afina W Lemstra, Hilka Soininen, Anne M Remes, Gunhild Waldemar, Steen Hasselbalch, Patrizia Mecocci, Marta Baroni, Jyrki Lötjönen, Wiesje van der Flier, Daniel Rueckert. Five-class Differential Diagnosis of Neurodegenerative Diseases using Random Undersampling Boosting. *NeuroImage Clinical* 2017.
- 5、Qinquan Gao, Shaohui Lin, Penggang Bai, Min Du, Xiaolei Ni, Dongzhong Ke, Tong Tong*. FZUImageReg: A Toolbox for Medical Image Registration and Dose Fusion in Cervical Cancer Radiotherapy. *Plos One*, 2017
- 6、Fahdi Kanavati, Tong Tong, Kazunari Misawa, Michitaka Fujiwara, Kensaku Mori, Daniel Rueckert, Ben Glocker. Supervoxel Classification Forests for Estimating Pairwise Image Correspondences. *Pattern Recognition*, 2017.
- 7、Tong Tong, Katherine Grey, Qinquan Gao, Liang Chen, Daniel. Rueckert. Multi-Modal Graph Fusion for diagnosis of Alzheimer's Disease. *Pattern Recognition*, 2017.
- 8、Ricardo Guerrero, Alexander Schmidt-Richberg, Christian Ledig, Tong Tong, Robin Wolz, Daniel Rueckert. Instantiated mixed effects modeling of Alzheimer's disease markers. *NeuroImage*, 2016.
- 9、Bin Chen, Yang Chen, Zhuhong Shao, Tong Tong, Limin Luo. Blood vessel enhancement via multi-dictionary and sparse coding: Application to retinal vessel enhancing. *Neurocomputing*, 2016.
- 10、Tong Tong, Qinquan Gao, Ricardo Guerrero, Christian Ledig, Liang Chen, Daniel Rueckert. A Novel Grading Biomarker for the Prediction of Conversion from MCI to AD. *IEEE Transaction on Biomedical Engineering*, 2016.
- 11、Juha Koikkalainen, Hanneke Rhodius-Meester, Antti Tolonen, Frederik Barkhof, Betty Tijms, Afina W. Lemstra, Tong Tong, Ricardo Guerrero, Andreas Schuh, Christian Ledig, Daniel Rueckert, Hilka Soininen, Anne M. Remes, Gunhild Waldemar, Steen Hasselbalch, Patrizia Mecocci, Wiesje van der Flier, Jyrki Lötjönen. "Differential diagnosis of neurodegenerative diseases using structural MRI data", *NeuroImage: Clinical* 2016
- 12、Tong Tong, Robin Wolz, Zehan Wang, Qinquan Gao, Kazunari Misawa, Michitaka Fujiwara, Kensaku Mori, Joseph V. Hajnal, and

- Daniel Rueckert. "Discriminative Dictionary Learning for Abdominal Multi-Organ Segmentation", Medical Image Analysis 2015
13. E. Bron, M. Smits, W. M van der Flier, H. Vrenken, F. Barkhof, P. Scheltens, J. M Papma, R. M Steketee, C. M. Orellana, R. Meijboom, M. Pinto, J. R Meireles, C. Garrett, A. J Bastos-Leite, A. Abdulkadir, O. Ronneberger, N. Amoroso, R. Bellotti, D. Cárdenas-Peña, A. M Álvarez-Meza, C. V Dolph, K. M Iftekharuddin, S. F Eskildsen, P. Coupé, V. S Fonov, K. Franke, C. Gaser, C. Ledig; R. Guerrero, T. Tong, K. R Gray, E. Moradi, J. Tohka, A. Routier, S. Durrleman, A. Sarica, G. Di Fatta, F. Sensi, A. Chincarini, G. M Smith, Z. V Stoyanov, L. Sørensen, M. Nielsen, S. Tangaro, P. Inglese, C. Wachinger, M. Reuter, J. C van Swieten, W. J Niessen, S. Klein. Standardized evaluation of algorithms for computer-aided diagnosis of dementia based on structural MRI: the CADDementia challenge. NeuroImage, 2015
14. Tong Tong, Robin Wolz, Qinquan Gao, Ricardo Guerrero, Joseph V. Hajnal, and Daniel Rueckert. "Multiple Instance Learning for Classification of Dementia in Brain MRI", Medical Image Analysis 2014.
15. Wenjia Bai, Wenzhe Shi, Declan O'Regan, Tong Tong, Haiyan Wang, Shahnaz Jamil-Copley, Nicholas S. Peters and Daniel Rueckert. "A Probabilistic Patch-Based Label Fusion Model for Multi-Atlas Segmentation with Registration Refinement: Application to Cardiac MR Images", IEEE Trans. On Medical Imaging, 2013.
16. Tong Tong, Robin Wolz, Pierrick Coupé, Joseph V. Hajnal, Daniel Rueckert, and ADNI. "Segmentation of MR images via Discriminative Dictionary Learning and Sparse Coding: Application to Hippocampus Labeling", NeuroImage 2013.

四、会议论文

1. T. Tong, G. Li, X. Liu, Q. Gao. Image Super-Resolution Using Dense Skip Connections. International Conference on Computer Vision (ICCV 2017)
2. L. Chen, T. Tong, C. Ho, R. Patel, D. Cohen, A. Dawson, O. Halse, O. Geraghty, P. Rinne, C. White, T. Nakornchai, P. Bentley, D. Rueckert. Identification of Cerebral Small Vessel Disease Using Multiple Instance Learning. International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2015)
3. F. Kanavati, T. Tong, K. Misawa, M. Fujiwara, K. Mori, D. Rueckert, B. Glocker. Supervoxel Classification Forests for Estimating Pairwise Image Correspondences. MICCAI workshop on Machine Learning in Medical Imaging, 2015 (MLMI 2015)
4. T. Tong, K. Grey, Q. Gao, L. Chen, D. Rueckert. Nonlinear Graph Fusion for Multi-Modal Classification of Alzheimer's Disease. MICCAI workshop on Machine Learning in Medical Imaging, 2015 (MLMI 2015)
5. Lisa Koch, Martin Rajchl, Tong Tong, Jonathan Passerat-Palmbach, Paul Aljabar, Daniel Rueckert, "Multi-Atlas Segmentation as a Graph Labelling Problem: Application to Partially Annotated Atlas Data". Information Processing in Medical Imaging (IPMI 2015)
6. Tong Tong, Qinquan. Gao. Extraction of Features from Patch Based Graphs for the Prediction of Disease Progression in AD. International Conference on Intelligent Computing (ICIC2015)
7. C. Ledig, R. Guerrero, T. Tong, K. Gray, A. Schmidt-Richberg, A. Makropoulos, R. A. Heckemann, and D. Rueckert, "Alzheimer's disease state classification using structural volumetry, cortical thickness and intensity features" MICCAI workshop Challenge on Computer-Aided Diagnosis of Dementia based on structural MRI data. 2014 (3rd Place)
8. Qinquan Gao, Tong Tong, Daniel Rueckert, Philip `Eddie' Edwards. "Multi-Atlas Propagation Via a Manifold Graph on a Database of

- Both Labeled and Unlabeled Images". SPIE Medical Imaging: Computer-Aided Diagnosis 2014.
- 9、Qinquan Gao, Akshay Asthana, Tong Tong, Daniel Rueckert, Philip "Eddie" Edwards. "Multi-scale Feature Learning on Pixel and Superpixel for Seminal Vesical MRI Segmentation". SPIE Medical Imaging: Image processing 2014
 - 10、Qinquan Gao, Akshay Asthana, Tong Tong, Yipeng Hu, Daniel Rueckert, Philip "Eddie" Edwards. "Hybrid Decision Forests for Prostate Segmentation in Multi-channel MR Images", ICPR 2014.
 - 11、Tong Tong, Robin Wolz, Qinquan Gao, Joseph V. Hajnal, and Daniel Rueckert. "Multiple Instance Learning for Classification of Dementia in Brain MRI", MICCAI 2013.
 - 12、Kai-Pin Tung, Wenjia Bai, Wenzhe Shi, Haiyan Wang, Tong Tong, Ranil De Silva, Philip Edwards, Daniel Rueckert. "Multi-Atlas Based Neointima Segmentation in Intravascular Coronary Oct", ISBI 2013.
 - 13、Tong Tong, Robin Wolz, Joseph V. Hajnal, and Daniel Rueckert. "Segmentation of Brain MR Images via Sparse Patch Representation", MICCAI 2012 Workshop on Sparsity Techniques in Medical Imaging (STMI 2012).
 - 14、Zehan Wang, Robin Wolz, Tong Tong, Daniel Rueckert. "Spatially Aware Patch-based Segmentation (SAPS): An Alternative Patch-Based Segmentation Framework", MICCAI 2012 Workshop on Medical Computer Vision (MCV 2012)
 - 15、Yu Qiao, Tong Tong, and Nobuaki Minematsu, "A Study on Bag of Gaussian Model with Application to Voice Conversion". Interspeech 2011.
 - 16、Tong Tong, Wei Liu, Yufeng Huang, Huanqing Feng, Chuanfu Li, "Combinatorial Streamline Tractography using constrained two-tensor model", MICCAI 2010 Workshop on Computational Diffusion MRI (CDMRI 2010).
 - 17、Tong Tong, Yufeng Huang, Huanqing Feng, Chuanfu Li, "Automatic Extraction of Three Dimensional Lung Texture Tree from HRCT Images", 2010 International Conference on Bioinformatics and Biomedical Technology (ICBBT 2010).
 - 18、Yufeng Huang, Tong Tong, Huanqing Feng, Chuanfu Li, "Accelerated Diffeomorphic Non-rigid Image Registration with CUDA Based on Demons Algorithm." 2010 International Conference on Bioinformatics and Biomedical Engineering (ICBBE 2010)
 - 19、Lina Dong, Xingjia Wang, Tong Tong, Chuanfu Li, Huanqing Feng, "Left Ventricle Segmentation from MSCT Data Based on Random Walks Approach", 3rd International Congress on Image and Signal Processing (CISP 2010).
 - 20、Xingjia Wang, Lina Dong, Tong Tong, Chuanfu Li, Huanqing Feng, Heqin Zhou, "A Novel Approach for Localization and Extraction of Left Ventricle in MSCT Data", 3rd International Conference on BioMedical Engineering and Informatics (BMEI 2010).
 - 21、Yufeng Huang, Huanqing Feng, Peng Zhao, Tong Tong, Chuanfu Li, "Automatic Landmark Detection and Norid Registration of Intra-Subject Lung CT Images", 1st International Conference on Information Science and Engineering (ICISE 2009).
 - 22、Wei Liu, Huanqing Feng, Chuanfu Li, Dehuang Wu, Tong Tong, "Accelerated Detection of Intracranial Space-occupying Lesions with CUDA Based on Statistical Texture Atlas in Brain HRCT", 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS 2009).

学术及社会兼职(Academic and social work)

- 1 中国工程科技发展战略福建研究院学术委员会委员
- 2 Frontiers in Neuroscience (中科院SCI二区)特刊编委

科研项目(Research project)

1	组厅字[2019]10号	国家'万人计划'青年拔尖人才	196万元	中组部	2019-2022年	1
2	闽教高[2018]56号	福建省闽江特聘教授	300万	福建省教育厅	2018-2021年	1
3	6190010435	阿尔兹海默病多模态生物标记物的时序建模及其临床应用	25万元	国家自然科学基金青年科学基金项目	2020-2022年	独立撰写
4	2019YZ016006	基于人工智能的胃癌精准诊断与治疗技术研究	80万元(共400万元)	福建省科技厅重大专项	2019-2022年	1

授权专利(Authorized patent)

1	一种基于深度学习的图像去压缩伪影方法	发明专利	2019-08-05	福建帝视信息科技有限公司	1
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