CURRICULUM VITAE

2023

NAME: Guangming Zhang PhD

PRESENT TITLE: Assistant Professor

WORK ADDRESS: McWilliams School of Biomedical Informatics
University of Texas Health Science Center at Houston
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UNDERGRADUATE EDUCATION:

1999.9-2003.6 Sch Comp Sci & Technol, Soochow University (Bachelor Degree)

GRADUATE EDUCATION:

2004.9-2006.6 Sch Software Engineering, Fudan University (Master Degree)
2008.9-2012.12 Sch Comp Sci & Technol, Soochow University (Ph.D Degree)

POSTGRADUATE TRAINING:

2013.6- 2017.6 Research Fellow, Wake Forest School of Medicine

ACADEMIC & ADMINISTRATIVE APPOINTMENTS:

2017.7-2018.6 Faculty associate, McWilliams School of Biomedical Informatics, University of Texas Health Science Center at Houston

2018.7- Assistant Professor, McWilliams School of Biomedical Informatics, University of Texas Health Science Center at Houston

PROFESSIONAL ORGANIZATIONS (AND COMMITTEES OF THESE):

2011.2- Association for Computing Machinery (ACM) member

HONORS AND AWARDS:

2008-2009 The Zhoushi Scholarship of Soochow University
2009-2010 Soochow University Graduate Academic Pacesetter
2009-2010 The Suzhou Industrial Park Scholarship of Soochow University
2010-2011 The Zhu Jing-wen Scholarship of Soochow University
2011 Exceptional Scientific Contribution awarded by the International Workshop on Advanced Computational Intelligence and Intelligent Informatics (IWACIII) 2011
2018 NVIDIA, the world's largest GPU company, awarded its new Quadro P6000 graphics card to support research study.

EDITORIAL POSITIONS:

Associate Editor:
Journal of Orthopedic Surgery and Rehabilitation

Editorial Board Member:
Journal of Radiology and Oncology
International Journal of Clinical and Medical Informatics
Insights in Biomedical Engineering
EC Orthopaedics
International Journal of Orthopedics: Research & Therapy (IJORT)
Annals Of Orthopaedics, Trauma And Rehabilitation
Scientific Journal of Musculoskeletal Disorders (SJMD)
Clinical Research in Orthopaedics

SERVICE TO THE COMMUNITY:
2015.2 Member of the IEEE Society

CURRENT GRANT SUPPORT:

NIH R01DE027027-05S1 (PI: Zhou, XB) 08/01/2021 - 07/31/2024
Title: A Novel Informatics System for Craniosynostosis Surgery（supplemental award）
Total amount: $390,000
Role: co-I

Chelak Medical Solutions, Inc (PI: Cheng.J, Co-PI: Zhou, XB)
07/01/2023 - 12/31/2023
Revolutionizing Ventricular Tachycardia Treatment with an imaging-informatics-platform
Total amount: $50,000
Role: co-I

PAST GRANT SUPPORT:

NIH 1R01DE027027-01 (PI: Zhou, XB) 7/1/2017-6/30/2022
Title: A Novel Informatics System for Craniosynostosis Surgery
Total amount: $1,849,952
Role: co-I

NIH 1R01DE021863-01A1 (PI: Xia, J; Zhou, XB) 5/1/2013-03/31/2019
Title: A Novel eFace System to Prevent the Risks of Facial Distortion after CMF Surgery
Total amount: $1,961,940
Role: co-I

PUBLICATIONS:

A. Abstracts

[1]. **Zhang G**, Liu R, Zhou X, Zhao D, Applegate R, Gandhi S, Richardson K, Pu M. Identification of High-Risk Patients Requiring Permanent Pacemaker After Transcatheter Aortic Valve Replacement Using Novel 3D Reconstruction and Tissue Characterization of the Aortic Valve Apparatus: A Pilot Clinical Study. Circulation 136 (Suppl 1), A17873-A17873, 2017.

[2]. Pu M, **Zhang G**, Vasu S, Zhao D, Zhou X. Importance of 3D Structures and Tissue Characteristics of Aortic Annulus/Valve Apparatus for Transcatheter Aortic Valve Replacement. ASE 2017, Journal of the American Society of Echocardiography 30 (6), B53-B54, 2017.

[3]. Liu R, **Zhang G**, Zhou X, Zhao D, Applegate R, Gandhi S, Richardson K, Pu M. Identification of Patients at High Risk for Late Pacemaker Implantation Post Transcatheter Aortic Valve Replacement. Journal of the American College of Cardiology (Suppl 1), 2018. Accepted

B. Articles in Journals

[1]. **Zhang G**, Cui Z, Li F, Wu J. DSA Image Fusion Based on Dynamic Fuzzy Logic and Curvelet Entropy. Journal of Multimedia, 4(3): 129-136, 2009.

[2]. **Zhang G**, Cui Z, Chen J, Wu J. CT Image De-noising Model Based on Independent Component Analysis and Curvelet Transform. Journal of Software, 5(9):1006-1013, 2010.

[3]. **Zhang G**, Cui Z, Chen J, Wu J. Key object fusion model based on beamlet transform and dynamic fuzzy logic. Journal of Computational Information Systems 6(4): 1093-1100, 2010.

[4]. Cui Z, **Zhang G**. A Novel Medical Image Dynamic Fuzzy Classification Model Based on Ridgelet Transform. Journal of Software, 5(5): 458-465, 2010.

[5]. Wu J, **Zhang G**, Xia J, Cui Z. Gray cerebrovascular image skeleton extraction algorithm using level set model. Journal of Multimedia, 5(3): 208-215, 2010.

[6]. Xian X, Cui Z, Zhao P, Yang Y, **Zhang G**. Utility maximization model for deep web source selection and integration. Journal of Software, 5(7): 995-1002, 2010.

[7]. **Zhang G**, Cui Z. A novel image fusion method using beamlet transform and graph cuts. Key Engineering Materials, 467-469: 1092-1096, 2011.

[8]. Xin J, Cui Z, Zhao P, **Zhang G**, Xian X. Applying MapReduce frameworks to a virtualization platform for Deep Web data source discovery. Journal on Communications, 32(7):189-195, 2011.

[9] Liu J, Zuo B, Zeng X, Vroman P, Rabenasolo B, **Zhang G**. A comparison of robust Bayesian and LVQ neural network for visual uniformity recognition of nonwovens. Textile Research Journal, 81(8): 763-777, 2011.

[10] **Zhang G**, Cui Z. A Novel Image Classification Model Based on Contourlet Transform and Dynamic Fuzzy Graph Cuts. Applied Mathematics & Information Sciences, 6(1): 19-24, 2012.

[11]. **Zhang G**, Cui Z, Zhao P, Wu J. A novel de-noising model based on independent component analysis and beamlet transform. Journal of Multimedia, 7(3): 247-253, 2012.

[12]. Wu J, Cui Z, Yue H, **Zhang G**, Semantic Analysis of Traffic Video Using Image Understanding. Journal of Multimedia, 7(1): 41-48, 2012.

[13]. Wu J, Cui Z, Chen J, **Zhang G**, A survey on video-based vehicle behavior analysis algorithms. Journal of Multimedia, 7(3): 223-230, 2012.

[14]. Yang Y, Cui Z, Wu J, **Zhang G**, Xian X, Fuzzy c-means clustering and opposition-based reinforcement learning for traffic congestion identification. Journal of Information & Computational Science, 9(9): 2441-2450, 2012.

[15]. Yang Y, Cui Z, Wu J, **Zhang G**, Xian X. Trajectory analysis using spectral clustering and sequene pattern mining. Journal of Computational Information Systems, 8(6): 2637-2645, 2012.

[16]. **Zhang G**, Beth P, Plate J, Casanova R, Hsu F, Li J, Xia L, Li K, Poehling G, Zhou X. A Systematic Approach to Predicting the Risk of Unicompartmental Knee Arthroplasty Revision. Osteoarthritis And Cartilage, 24: 991-999, 2016.

[17] **Zhang G**, Xia J, Liebschner M, Zhang X, Kim D, Zhou X. Improved Rubin-Bodner Model for the Prediction of Soft Tissue Deformations. Med Eng Phys, 38: 1369-1375, 2016.

[18]. Pan B[1], **Zhang G**[1], Xia J J, Yuan P, Ip H H, He Q, Lee P K, Chow B, Zhou X, Prediction of Soft Tissue Deformations after CMF Surgery with Incremental Kernel Ridge Regression, Computers in Biology and Medicine, 75: 1-9, 2016. ([1] share first authorship).

[19]. **Zhang G**, Tan H, Qian X, Zhang J, Li K, David L, Zhou X, A Systematic Approach to Predicting Spring Force for Sagittal Craniosynostosis Surgery, J Craniofac Surg, 27: 636–643, 2016.

[20]. Zhang X, Tang Z, Liebschner MA, Kim D, Shen S, Chang CM, Yuan P, **Zhang G**, Gateno J, Zhou X, Zhang SX, Xia JJ. An eFace-Template Method for Efficiently Generating Patient-Specific Anatomically-Detailed Facial Soft Tissue FE Models for Craniomaxillofacial Surgery Simulation. Ann Biomed Eng. 44: 1656-1671, 2016.

[21]. Kim D, Ho DC, Mai H, Zhang X, Shen SGF, Shen S, Yuan P, Liu S, **Zhang G**, Zhou X, Gateno J, Liebschner MAK, Xia JJ. A clinically validated prediction method for facial soft-tissue changes following double-jaw surgery. Med Phys. 44(8): 4252-4261, 2017.

[22]. Zhang X, Kim D, Shen S, Yuan P, Liu S, Tang Z, **Zhang G**, Zhou X, Gateno J, Liebschner M, Xia J, An eFTD-VP framework for efficiently generating patient-specific anatomically detailed facial soft tissue FE mesh for craniomaxillofacial surgery simulation. Biomech Model Mechanobiol. 12(2) 387-402, 2018

[23]. **Zhang G**, You L, Lan L, Zeng N, Chen W, Poehling G, Zhou X, Risk Prediction Model for Knee Arthroplasty. IEEE Access, 2019, 7, 34645-34654.

[24]. **Zhang G**, Zhang Y, Fu X, Zhang X. Effects of Daily Mastication on Bone Remodeling With Implant-Tooth-Supported Fixed Partial Prosthesis: A Finite Element Study. IEEE Access, 2019, 7, 33851-33858.

[25]. **Zhang G**, Pu M, Gu Y, Zhou X**.** Predicting Aortic Regurgitation After Transcatheter Aortic Valve Replacement by Finite Element Method. IEEE Access, 2019, 7, 64315-64322.

[26]. Liu J, **Zhang G**, Zhang F, Song C. The Lessons and Experiences That Can Be Learned From China in Fighting Coronavirus Disease 2019. Frontiers in public health 2020; 8: 227.

[27]. Peng L, Lan L, Xiu P, **Zhang G**, et al. Prediction of Proximal Junctional Kyphosis After Posterior Scoliosis Surgery With Machine Learning in the Lenke 5 Adolescent Idiopathic Scoliosis Patient. Frontiers in bioengineering and biotechnology 2020; 8: 559387.

[28]. Peng L, **Zhang G**, Zuo H, Lan L, Zhou X. Surgical Design Optimization of Proximal Junctional Kyphosis. Journal of healthcare engineering 2020; 2020: 8886599.

[29]. You L, **Zhang G**, Zhao W, R MG, David L, Zhou X. Automated Sagittal Craniosynostosis Classification from CT Images Using Transfer Learning. Clinics in surgery 2020; 5.

[30]. **Zhang G**, Liu R, Pu M, Zhou X. Biomechanical Identification of High-Risk Patients Requiring Permanent Pacemaker After Transcatheter Aortic Valve Replacement. Frontiers in bioengineering and biotechnology 2021; 9: 615090.

[31]. **Zhang G**, Mao Y, Li M, Peng L, Ling Y, Zhou X. The Optimal Tetralogy of Fallot Repair Using Generative Adversarial Networks. Frontiers in physiology 2021; 12: 613330.

[32]. Liu, J., Liang, J., Ding, J., **Zhang G**, et al. Microfiber pollution: an ongoing major environmental issue related to the sustainable development of textile and clothing industry. Environ Dev Sustain, 2021, 23, 11240–11256.

[33]. Liu J, Zhou Y, Ye C, **Zhang G**, Zhang F, Song C. The spatial transmission of SARS-CoV-2 in China under the prevention and control measures at the early outbreak. Archives of public health, 2021; 79(1): 8.

[34]. Zhan Y, **Zhang G**, Li M, Zhou X. Whole-Body MRI vs. PET/CT for the Detection of Bone Metastases in Patients With Prostate Cancer: A Systematic Review and Meta-Analysis. Frontiers in oncology, 2021; 11: 633833.

[35]. Li M, Chen Y, Mao Y, Jiang M, Liu Y, Zhan Y, Li X, Su C, **Zhang G**, Zhou X: Diagnostic Classification of Patients with Dilated Cardiomyopathy Using Ventricular Strain Analysis Algorithm. Computational and mathematical methods in medicine 2021, 2021:4186648.

[36]. L You, Y Deng, **G Zhang**, et al, A novel sagittal craniosynostosis classification system based on multi-view learning algorithm, Neural Computing and Applications, 2022

[37]. M Li, M Jiang, **G Zhang**, Y Liu, X Zhou, Prediction of fluid intelligence from T1-w MRI images: A precise two-step deep learning framework, PloS one, 2022,17 (8), e0268707

[38]. X Huang, **G Zhang**, X Zhou, X Yang, A review of numerical simulation in transcatheter aortic valve replacement decision optimization, Clinical Biomechanics, 2023, 106003

C. Conference articles

[1]. **Zhang G**, Wu J, Cui Z. Application of Wavelet Thresholding De-noising in DSA. 2008 International Symposium on Information Science and Engineering (ISISE 2008), Shanghai, China, 1: 130-134, 2008.

[2]. **Zhang G**, Cui Z, Wu J. Medical Image Retrieval in Private Network Based on Dynamic Fuzzy Data Model and Wavelet Entropy. 2009 Advances in Web and Network Technologies, and Information Management, (APWEB/WAIM 2009). LNCS 5731:58-66, 2009.

[3]. **Zhang G**, Cui Z. A Novel Image Restoration Model using ICA and Ridgelet Transform. International Conference on Photonics and Image in Agriculture Engineering (PIAGENG 2009) SPIE (The International Society for Optical Engineering) - p74891A (8 pp.), USA, 2009.

[4]. **Zhang G**, Xin J, Wu J, Cui Z. CT Image De-noising using Wavelet Transform and Dynamic Fuzzy Logic. 2009 International Workshop on Intelligent Systems and Applications (ISA 2009), Wuhan, China 1: 318-321, 2009.

[5]. **Zhang G**, Zheng Y, Wu J, Cui Z. Wavelet Fusion in DSA based on Dynamic Fuzzy Data Model. IEEE Engineering in Medicine and Biology Society Proceedings, (ICBBE 2009), Beijing, 2009.

[6]. **Zhang G**, Xian X, Cui Z, Wu J. Medical Image De-noising Extended Model Based on Independent Component Analysis and Dynamic Fuzzy Function. WASE International Conference on Information Engineering, (ICIE2009), 1: 209-212, 2009.

[7]. Cui Z, **Zhang G**, Wu J. Medical Image Fusion Based on Wavelet Transform and Independent Component Analysis. International Joint Conference on Artificial Intelligence, (JCAI 2009), Haikou, China, 1: 480-483, 2009.

[8]. Wu J, **Zhang G**, Xia J, Cui Z. Skeleton extraction of cerebrovascular image based on topological nodes. Prooceeding of the International Symposiom on Information Processing (ISIP 2009), Huangshan, China,1: 159-162,2009.

[9]. Wu J, **Zhang G**, Xia J, Cui Z, Research on cerebral aneurysm detection based on OPTA algorithm. Proceedings of the International Symposium on Information Processing (ISIP2009), Huangshan, China, 1: 13-16,2009

[10]. Wu J, **Zhang G**, Cao Y, Cui Z, Research on Cerebral Aneurysm Image Recognition Method Using Bayesian Classification. Proceedings of the International Symposium on Information Processing (ISIP2009), Huangshan, China, 1: 21-23,2009.

[11]. **Zhang G**, Cui Z, Gong S. A Novel CT Image Dynamic Fuzzy Retrieval Method using Curvelet Transform. 2010 High Performance Computing and Applications, (HPCA2009), LNCS 5938: 557–562, 2010.

[12]. **Zhang G**, Cui Z. A Novel De-noising Model using Contourlet Transform and Dynamic Fuzzy Logic. The International Symposium on Intelligent Systems (iFAN2010), SICE, Tokyo, 2010.

[13]. Li X, **Zhang G**, Fang J, Wu J, Cui Z. Vehicle color recognition using vector matching of template. International Symposium on Electronic Commerce and Security (ISECS 2010), Guangzhou, 189-193, 2010.

[14]. Yang Y, Cui Z, Wu J, **Zhang G**, Xian X. Traffic video segmentation and key frame extraction using improved global K-means clustering. International Symposium on Information Science and Engineering (ISISE 2010), Shanghai, 521-525, 2010.

[15]. **Zhang G**, Xia JJ, Zhang X, Zhou X. Prediction of facial soft tissue deformations with improved Rubin-Bodner model after craniomaxillofacial (CMF) surgery, 2015 IEEE International Conference on Image Processing (ICIP 2015), Quebec City, Canada, 2796-800. 2015.

[16]. Kim D, Mai H, Chang C, Ho D, Zhang X, Shen S, Yuan P, **Zhang G**, Gateno J, Zhou X, Liebschner M, Xia J. FEM Simulation with Realistic Sliding Effect to Improve Facial-Soft-Tissue-Change Prediction Accuracy for Orthognathic Surgery. International Conference on Medical Imaging and Virtual Reality (MIAR 2016), Bern, Switzerland, LNCS, 9805: 27-37, 2016.

[17]. Kim D, Chang C, Ho D, Zhang X, Shen S, Yuan P, Mai H, **Zhang G**, Zhou X, Gateno J, Liebschner M, Xia J. Two-Stage Simulation Method to Improve Facial Soft Tissue Prediction Accuracy for Orthognathic Surgery. Medical Image Computing and Computer-Assisted Intervention (MICCAI 2016), LNCS, 9900: 559-567. Springer, Heidelberg, 2016.

D. Granted Patents

[1] Patent Name: DSA Image Fusion Method Based on Ridgelet Transform
Inventer: Cui Z, **Zhang G,** et al. Patent No:ZL201010126052.5
Official authorization date: 2012.2.8

[2] Patent Name: Traffic congestion detection method based on video processing
Inventor: Cui Z, Yang Y, Wu J, **Zhang G,** et al. Patent No: ZL 201110108851.4
Official authorization date: 2013.5.1

[3] Patent Name: Mining method based on the optimal path of vehicle traffic image information
Inventor: Cui Z, **Zhang G,** et al. Patent No: ZL 201110265681.0
Official authorization date: 2014.4.2

[4] Patent Name: Light intensity correction method based on the image of the environmental factors. Inventor: Cui Z, **Zhang G,** et al. Patent No: ZL 201110266440.8
Official authorization date：2015.9.30