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EDUCATION	Stony Brook University , Stony Brook, NY <i>Ph.D. Candidate, Computer Science</i> <ul style="list-style-type: none">• GPA: 3.86 / 4.0• Advisor: Prof. Chao Chen National University of Singapore , Singapore <i>M.S. Electrical Engineering</i> <ul style="list-style-type: none">• CAP: 4.3 / 5.0 (GPA: 3.52 / 4.0) Lanzhou University , Lanzhou, Gansu, China <i>B.S. Computer Science</i> <ul style="list-style-type: none">• GPA: 3.89 / 4.0 (Rank: 2 / 77)	Sep. 2016 – Present Sep. 2012 – Jul. 2013 Sep. 2008 – Jun. 2012
SKILLS	C, C++, CUDA, Python, OpenCV, PyTorch, TensorFlow, Java	
RESEARCH	Euler Characteristic Curve Computation with GPU	
EXPERIENCE	<p>Proposed an optimized GPU implementation of Euler Characteristic Curve computation for 2D and 3D grayscale images. Our implementation exploited GPU memory hierarchy and achieved an average of 5 times speedup over a multithreading CPU implementation.</p> <p>Topological Biomarker for pCR Prediction</p> <p>Extracted multi-dimensional topological structures from breast cancer DCE-MRI imaging data to direct a deep neural network's attention to a dedicated set of voxels with strong biological relevance for pCR prediction.</p> <p>Topology-Aware Generative Adversarial Network</p> <p>Introduced a topology loss that bridged the gap between synthetic image distribution and real image distribution in the topological feature space. The proposed GAN network generated realistic looking images with realistic topology which served as data augmentation for segmentation tasks.</p>	
WORK	VI DIMENSIONS PTE LTD , Singapore	Jan. 2016 – Aug. 2016
EXPERIENCE	<p>GPU-Acceleration of Background Subtraction System</p> <p>Designed and implemented a CUDA accelerated Gaussian Mixture Model background subtraction algorithm for a surveillance system deployed in Singapore parks. The algorithm achieved 20x speedup over the CPU implementation.</p> <p>ADSC Illinois at Singapore Pte. Ltd, Singapore</p> <p>Repetitive Structures Disambiguation for 3D Reconstruction</p> <p>Proposed to iteratively construct and decompose a minimum spanning tree from the images adjacency matrix to disambiguate repetitive structures commonly found in 3D reconstructions.</p> <p>Wide-Baseline Feature Matching System</p> <p>Developed a feature matching system which reliably generated large numbers of good quality correspondences over wide baselines where previous techniques provide few or no matches.</p> <p>CUDA Affine SIFT</p> <p>Built an affine-SIFT module based on a GPU-SIFT implementation with affine simulations performed inside GPU. CUDA affine-SIFT achieved up to 30x speedup over CPU ASIFT implementation.</p>	Sep. 2013 – Jan. 2016

- PUBLICATIONS
1. **Fan Wang**, Hubert Wagner, Chao Chen, "GPU Computation of the Euler Characteristic Curve for Imaging Data." International Symposium on Computational Geometry (**SoCG**), 2022, (acceptance rate 36.8%).
 2. **Fan Wang**, Saarthak Kapse, Steven Liu, Prateek Prasanna, Chao Chen, "TopoTxR: A Topological Biomarker for Predicting Treatment Response in Breast Cancer." International Conference on Information Processing in Medical Imaging (**IPMI**), 2021, (acceptance rate 30%).
 3. **Fan Wang**, Huidong Liu, Dimitris Samaras, Chao Chen, "TopoGAN: A Topology-Aware Generative Adversarial Network." European Conference on Computer Vision (**ECCV**), 2020, (**Oral**, acceptance rate 2.1%).
 4. **Fan Wang**, Aditi Nayak, Yogesh Agrawal, Roy Shilkrot, "Hierarchical Image Link Selection Scheme for Duplicate Structure Disambiguation." *British Machine Vision Conference (BMVC)*, 2018.
 5. Wen-Yan Lin, **Fan Wang**, Min-Ming Cheng, Sai-Kit Yeung, Philip H.S. Torr, Minh N. Do, Jiangbo Lu, "CODE: Coherence Based Decision Boundaries for Feature Correspondence." *Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2017.
- HONOURS AND AWARDS
- National Scholarship of China, Dec 2009
- First Class Scholarship of Lanzhou University, Dec 2010
- First Class Scholarship of Lanzhou University, Dec 2011