Brevin Tilmon

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Education

PhD, University of Florida, Electrical and Computer Engineering 2019 - Present
BS, Murray State University, Engineering Physics 2015 - 2019

Experience

Facebook, Facebook Reality Labs, Research Intern 2021
Working on 3D computer vision and depth sensing. Advised by Michael Hall.

NASA, Intelligent Robotics Group, Research Intern 2021
Developed differentiable rendering algorithm and simulated lunar materials. Experimented with 3D microscope hardware prototype for autonomous geometry and reflectance recovery. Improved in-house algorithms such as multi view stereo, photometric stereo, and self-supervised depth networks to reconstruct difficult materials. Advised by Uland Wong and Michael Dille.

University of Florida, FOCUS Lab, Graduate Research Assistant 2019 - Present
Developed novel deep learning and computer vision algorithms. Designed and optimized custom robotic systems and software for low latency demonstrations and hardware prototyping. Published resulting research in top computer vision conferences and journals such as ICCV, PAMI, ICCP. Advised by Sanjeev Koppal.

Publications

1. SaccadeCam: Adaptive Visual Attention for Monocular Depth Sensing
   B. Tilmon and S. J. Koppal
   International Conference on Computer Vision (ICCV), 2021
2. Fast Foveating Cameras for Dense Adaptive Resolution
   B. Tilmon, E. Jain, S. Ferrari and S. J. Koppal
   Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2021
3. FoveaCam: A MEMS Mirror-Enabled Foveating Camera
   B. Tilmon, E. Jain, S. Ferrari and S. J. Koppal.
   International Conference on Computational Photography (ICCP), 2020
4. Towards a MEMS-based Adaptive LIDAR
   F. Pittaluga, Z. Tasneem, J. Folden, B. Tilmon, A. Chakrabarti and S. J. Koppal.
   International Conference on 3D Vision (3DV), 2020
5. Design and Calibration of a Fast Flying-Dot Projector for Dynamic Light Transport Acquisition
   K. Henderson, X. Liu, J. Folden, B. Tilmon, S. Jayasuriya and S.J. Koppal.
   Transactions on Computational Imaging 2020
6. Novel Approach of Wavelet Analysis for Nonlinear Ultrasonic Measurements and Fatigue Assessment of Jet Engine Components
   G. Bunget, B. Tilmon, A. Yee, D. Stewart, J. Rogers, et al.
   American Institute of Physics 2018

Patents

1. Fast Foveation Camera and Controlling Algorithms
   S. Koppal, Z. Tasneem, D. Wang, H. Xie, B. Tilmon

Awards

NSF GRFP Honorable Mention 2020
Graduate School Preeminence Award, University of Florida 2019
Kirkland Fellowship, University of Florida 2019

Skills

Software: Python, C++, PyTorch, CUDA, NVIDIA OptiX, Mitsuba
Hardware: Depth/RGB Cameras, Embedded Systems, Optics Bench