Brevin Tilmon

https://btilmon.github.io
brevinjt@gmail.com

Education

University of Florida 5/2019 - 12/2023
Ph.D. Electrical and Computer Engineering

Murray State University 8/2015 - 5/2019
B.S. Engineering Physics

Experience

Snap Inc. 5/2022 - 11/2022
Research Intern, Computational Imaging Team
Submitted patent and paper to CVPR 2023 on computational imaging project. Topics include 3D sensing, optics, CUDA/C++.

Meta 8/2021 - 12/2021
Research Intern, Reality Labs
Improved machine learning based depth sensing capabilities on Meta AR/VR devices compared to classic stereo. Submitted patent based on results. Shipped code and models to production for further improvements after internship.

NASA Ames Research Center 5/2021 - 8/2021
Research Intern, Intelligent Robotics Group
Improved 3D reconstruction capabilities of a computational microscope intended for remote material understanding in space. Developed a simulator in CUDA of the microscope and publicly released dataset to benchmark 3D reconstruction algorithms such as multiview stereo, photometric stereo, and neural radiance fields. Dataset from the simulator can be found here.

University of Florida 5/2019 - Present
Graduate Research Assistant, Florida Optics and Computational Sensor Lab
Advisor: Sanjeev Koppal
My PhD work develops passive and active computational imaging sensors that adaptively redistribute either illumination or resolution for efficient computer vision.

Publications

B. Tilmon and S. J. Koppal. "SaccadeCam: Adaptive Visual Attention for Monocular Depth Sensing". **ICCV**, 2021. Website.

B. Tilmon, E. Jain, S. Ferrari and S. J. Koppal. "Fast Foveating Cameras for Dense Adaptive Resolution". **PAMI**, 2021. Website.

B. Tilmon, E. Jain, S. Ferrari and S. J. Koppal. "FoveaCam: A MEMS Mirror-Enabled Foveating Camera". **ICCP**, 2020. Website.

F. Pittaluga, Z. Tasneem, J. Folden, B. Tilmon, A. Chakrabarti and S. J. Koppal. "Towards a MEMS-based Adaptive LIDAR". **3DV**, 2020. Website.

K. Henderson, X. Liu, J. Folden, B. Tilmon, S. Jayasuriya and S. J. Koppal. "Design and Calibration of a Fast Flying-Dot Projector for Dynamic Light Transport Acquisition". **Transactions on Computational Imaging**, 2020. Website.

Open Source Software

illumiGrad [GitHub]
PyTorch implementation of local bundle adjustment for RGBD cameras.

Patents

B. Tilmon, S. Su, M. Hall. "Efficient Dynamic Occlusion based on Stereo Vision". Submitted.

S. J. Koppal, Z. Tasneem, D. Wang, H. Xie, B. Tilmon. "Fast Foveation Camera and Controlling Algorithms". US16844597, 2020.

Awards

National Science Foundation Graduate Research Fellowship Honorable Mention 2021

Graduate School Preeminence Award, University of Florida 2019 - 2024
Selective fellowship for competitive PhD applicants.

Jesse & Deborah Jones Endowment Scholarship, Murray State University 2015 - 2019
Merit scholarship covered housing and partial tuition.