Brevin Tilmon

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Education

University of Florida 5/2019 - 5/2023 (expected)
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
Managers: Sizhuo Ma, Jian Wang and Guru Krishnan
Submitted patent and paper to leading computer vision conference on computational imaging project.
Topics include structured light, optics, CUDA/C++.

Meta 8/2021 - 12/2021
Research Intern, Reality Labs
Managers: Shuochen Su and Michael Hall
Developed machine learning software for adaptive depth sensing on AR/VR devices. 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
Managers: Michael Dille and Uland Wong
Improved 3D reconstruction capabilities of a computational microscope intended for remote material understanding in space. Developed a simulator on top of NVIDIA OptiX CUDA-based rendering engine of the microscope to benchmark 3D reconstruction algorithms such as multi view stereo and photometric stereo. 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 adaptive computational imaging sensors that either boost energy efficiency or selectively increase resolution on regions of interest more than what is possible with conventional sensors. These sensors improve various applications across computer vision and machine learning.

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 Selective fellowship for competitive PhD applicants.	2019 - 2024
Jesse & Deborah Jones Endowment Scholarship, Murray State University Merit scholarship covered housing and partial tuition.	2015 - 2019