

# Brevin Tilmon

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## Education

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

## Experience

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**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 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

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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

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

## Awards

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

## Skills

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**Software:** Python, C++, PyTorch, CUDA, NVIDIA OptiX, Mitsuba

**Hardware:** Depth/RGB Cameras, Embedded Systems, Optics Bench