Brevin Tilmon

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Education

University of Florida 05/19-Present
Ph.D. Electrical and Computer Engineering

Murray State University 08/15-05/19
B.S. Electrical Engineering

Experience

Snap Inc. 05/22-12/22
Research Intern, Computational Imaging Group
Developed state-of-the-art energy-efficient holographic 3D sensor for computer vision on Snap's augmented reality glasses. Built real-time self-contained hardware prototype with CUDA and C++ on an embedded NVIDIA Jetson Nano. Released associated CUDA library on GitHub. Published results in CVPR 2023 and submitted patent. [Project Website]

Meta 08/21-12/21
Research Intern, Reality Labs
Developed machine learning model for selective depth sensing on Meta's AR/VR devices. The algorithm achieves better virtual object occlusion than classic stereo depth algorithms at similar runtimes. Leveraged Meta's production machine learning infrastructure (distributed training, model quantization, large synthetic and real datasets). Submitted patent.

NASA 05/21-08/21
Research Intern, Intelligent Robotics Group
Developed CUDA simulator and dataset to improve generalization of a computational imaging microscope in development for autonomous reflectance capture in space. Put another way, the microscope will serve as a robot geologist in space. [Dataset Link]

University of Florida 05/19-Present
Graduate Research Assistant, Florida Optics and Computational Sensor Lab
Developed computer vision algorithms and computational imaging systems for efficient computer vision applications. [Personal Website]

Publication

1. B. Tilmon, Z. Sun, S. J. Koppal, Y. Wu, G. Evangelidis, R. Zahrredine, G. Krishnan, S. Ma, and J. Wang."Energy-Efficient Adaptive 3D Sensing". **CVPR**, 2023. [Project Website]
2. B. Tilmon and S. J. Koppal. "SaccadeCam: Adaptive Visual Attention for Monocular Depth Sensing". **ICCV**, 2021. [Project Website]
3. B. Tilmon, E. Jain, S. Ferrari and S. J. Koppal. "Fast Foveating Cameras for Dense Adaptive Resolution". **PAMI**, 2021. [Project Website]
4. B. Tilmon, E. Jain, S. Ferrari and S. J. Koppal. "FoveaCam: A MEMS Mirror-Enabled Foveating Camera". **ICCP**, 2020. [Project Website]
5. F. Pittaluga, Z. Tasneem, J. Folden, B. Tilmon, A. Chakrabarti and S. J. Koppal. "Towards a MEMS-based Adaptive LIDAR". **3DV**, 2020. [Project Website]
6. 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. [Project Website]

Software

1. **holoCu** [GitHub]. CUDA implementation and simulator of the holographic projector developed for my CVPR 2023 paper "Energy-Efficient Adaptive 3D Sensing".
2. **illumiGrad** [Github]. PyTorch bundle adjustment for RGBD cameras.

Skills

Computer Vision, Computational Imaging/Photography, Machine Learning
C++, Python, CUDA, PyTorch