Brevin Tilmon

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Summary

I am a PhD student in the FOCUS Lab at the University of Florida experienced in computer vision and computational photography.

Experience

- Snap Inc. - Research Intern - Computational Imaging Team 2022
  - Published "Energy-Efficient Adaptive 3D Sensing" in CVPR 2023, released CUDA rendering library holoCu, and did real time demos of the sensor at conferences.
- Meta - Research Intern - Reality Labs 2021
  - Developed an adaptive machine learning based depth estimation algorithm for Meta's AR/VR devices.
  - Leveraged Meta's production machine learning infrastructure and large synthetic and real datasets.
- NASA - Research Intern - Intelligent Robotics Group 2021
  - Developed a simulator of a computational microscope to improve shape and reflectance estimation.
  - Implemented the simulator in CUDA on top of NVIDIA OptiX.
- University of Florida - Graduate Research Assistant - FOCUS Lab 2019 - 2023
  - Developed several real time imaging systems that had unprecedented imaging capabilities (1, 2, 3, 4).
  - Developed efficient computer vision, machine learning, and computational photography software.

Software

- holoCu - CUDA hologram rendering engine
- illumiGrad - RGBD bundle adjustment in PyTorch

Publications (selected)

- 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.
- B. Tilmon and S. J. Koppal. "SaccadeCam: Adaptive Visual Attention for Monocular Depth Sensing". ICCV, 2021.
- B. Tilmon, E. Jain, S. Ferrari and S. J. Koppal. "FoveaCam: A MEMS Mirror-Enabled Foveating Camera". PAMI, 2021. ICCP, 2020.
- F. Pittaluga, Z. Tasneem, J. Folden, B. Tilmon, A. Chakrabarti and S. J. Koppal. "Towards a MEMS-based Adaptive LIDAR". 3DV, 2020.
- 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.

Education

- University of Florida 2019 - 2023
  PhD - Electrical and Computer Engineering
  Thesis: Foveated Computational Imaging
- Murray State University 2015 - 2019
  BS - Electrical Engineering - 3.8/4.0

Skills

- Computer Vision, Computational Photography, Computer Graphics, Machine Learning
- GPU (CUDA, OpenGL), C++, Python, PyTorch
- Linux, Embedded Systems, Electronics, Optics