Brevin Tilmon

GitHub - Google Scholar - Personal Website - brevinjt@gmail.com - Linkedin

Experience

Quidient (https://quidient.com)

Algorithm Group Manager .... 02/2024 - Present
Senior Software Engineer .... 07/2023 - 02/2024

- I led a team that designed and implemented a custom physically based differentiable ray tracing engine to reconstruct the geometry, materials, and light field of unbounded scenes captured with smartphones and machine vision cameras. We delivered the engine to development partners through a SDK for proprietary applications. Developed video-based computational photography algorithms to improve image quality coming from smartphones and machine vision cameras. Developed automated radiometric and geometric camera calibration pipelines according to Adobe DNG standard.
- Founded, managed, and grew a team to four engineers all working on applied research and engineering for Quidient products.
- Led research initiatives for publications at major conferences.
- Principal Investigator on several awarded SBIR and STTR grants.

University of Florida - Graduate Research Assistant (PhD) (https://focus.ece.ufl.edu)   05/2019 - 11/2023

- Developed several real time imaging systems for 3D reconstruction and super resolution (See Publications or Google Scholar).
- Developed optimized computer vision, computer graphics, and machine learning software on embedded systems.

Snap Research - Research Intern (https://research.snap.com)   05/2022 - 12/2022

- Built a holographic depth camera for Spectacles Augmented Reality glasses with the Computational Imaging Team at Snap Research. Published the work in CVPR 2023 with patents pending.

Meta - Research Intern (https://about.meta.com/realitylabs)   08/2021 - 12/2021

- Developed an efficient stereo depth estimation network for Orion Augmented Reality Glasses. Submitted patent on the work.

NASA - Research Intern (https://www.nasa.gov/content/intelligent-robotics)   04/2021 - 08/2021

- Developed an internal physically based rendering engine on top of NVIDIA OptiX to simulate a computational microscope used for inverse rendering on rovers in spaces.

Publications (selected)

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

Education

University of Florida   05/2019 - 11/2023
PhD - Electrical and Computer Engineering
Thesis: Foveated Computational Imaging

Murray State University   08/2015 - 05/2019
BS - Electrical Engineering - 3.8/4.0
Courses: Machine Learning, Digital Signal Processing (advanced), Electromagnetism (advanced), Calculus 2/3, Linear Algebra, Differential Equations, Digital Logic Design (FPGA), Optics, Control Theory, Circuits