Daniel Hernández Juárez

Contact Information

Nationality: Spanish
Barcelona, Catalonia, Spain
https://danihernandez.eu

Professional Experience

ML Compiler Engineer (Member of Technical Staff) **July 2024-Currently**
AMD, Remote
MLIR, GPU optimization, Compilers

- Developer on rocMLIR, MLIR-based open source compilation stack for AMD GPUs.
- GPU optimization features: KV-Cache, share memory swizzle for output stores, input fusions.
- New features: GEMM+elementwise+GEMM fusion (single kernel), shared memory automatic reuse.
- Support for new MI series architecture.

Senior Research Engineer **May 2020-May 2024**
Slamcore, Remote
Computer Vision, Deep learning, Panoptic Segmentation, CUDA, TensorRT

- Developed a fast panoptic segmentation model for Xavier NX achieving 30 fps.
- Contributed to an ICRA paper on deep learning-based depth completion.

Research Engineer **March 2019-February 2020**
Huawei Noah's Ark lab, London, United Kingdom
Computer Vision, Deep learning, Color Constancy (Auto White Balance)

- Authored a CVPR paper on deep learning-based multi-camera color constancy.

Education

PhD in Computer Vision **2020**
Universitat Autònoma de Barcelona, Spain

- Thesis title: Embedded 3D Reconstruction for Autonomous Driving
- Adapt to GPU and parallelize (CUDA) computer vision algorithms.
- Computer Vision contributions: Developed a faster and more accurate version of the Stixel World.
- PhD Internships at Mercedes-Benz Group AG in Germany and Element AI (ServiceNow) in Canada

MSc in Computer Vision **2015**
Universitat Autònoma de Barcelona, Spain

Bachelor of Computer Science **2014**
Universitat Autònoma de Barcelona, Spain

Publications

Journal Papers

Self-Supervised Depth Completion for Active Stereo **2022**
In *IEEE Robotics and Automation Letters (2022)* (**RA-L and ICRA**)

3D Perception with Slanted Stixels on GPU **2021**
In *IEEE Transactions on Parallel and Distributed Systems (2021)* (**TPDS**)

Slanted Stixels: A way to represent steep streets **2019**
In *International Journal of Computer Vision (2019)* (**IJCV**)

Conference Papers

A Multi-Hypothesis Approach to Color Constancy **2020**
In *Computer Vision and Pattern Recognition 2020* (**CVPR**)

Slanted Stixels: Representing San Francisco's Steepest Streets **2017**
In *British Machine Vision Conference 2017* (**BMVC**)
Awarded as **Best Industry Paper**

GPU-accelerated real-time stixel computation **2017**
In *Winter Conference on Applications of Computer Vision 2017* (**WACV**)

Embedded real-time stereo estimation via Semi-Global Matching **2016**
In *International Conference on Computational Science 2016* (**ICCS**)

Skills	Python, C/C++, CUDA, Matlab, OpenCV, numpy, PyTorch, Tensorflow	
Awards	**Extraordinary PhD Prize - Universitat Autònoma de Barcelona**	**2023**
	Best Industrial Paper Award - BMVC	**2017**