Daniel Hernández Juárez

Contact Information

dhernandez0@gmail.com
https://www.danihernandez.eu
London, United Kingdom
Nationality: Spanish

Research Interests

Computer Vision: Color Constancy, Depth Completion, Stixel World and 3D Reconstruction.
Robotics: Autonomous Driving, SLAM.
HPC: Parallel Computing, CUDA, GPGPU and real-time Algorithms.

Professional Experience

Deep Learning Research Scientist **May 2020-Currently**
Research group at SLAMcore, London, United Kingdom

- Working on different computer vision tasks: depth completion, semantic segmentation.

Research Engineer **March 2019-February 2020**
Computer Vision group at Huawei Noah's Ark lab, London, United Kingdom

- Working on Color Constancy (Auto White Balance).

PhD Internship **June 2018-December 2018**
Computer Vision group at Element AI, Montreal, Canada

- Working on Deep learning and Computer Vision.
- Advisor: Dr. David Vazquez

PhD Internship **January 2017-July 2017**
Dept. of Environment Perception at Daimler AG, Stuttgart, Germany

- Scholarship: SEBAP mobility - Internship Grant
- Objective: To develop a faster and more accurate version of the Stixel World algorithm trying to get rid of some model assumptions.
- Advisor: Dr. Uwe Franke

Assistant Professor **2015-2018**
Computer Architecture and Operating Systems (UAB department), **Universitat Autònoma de Barcelona**, Spain

- Subjects: Fundamentals of Computer Science, Distributed Systems

Education

PhD in Computer Vision **2015-2020**
Universitat Autònoma de Barcelona, Spain

- Thesis title: Embedded 3D Reconstruction for Autonomous Driving
- Advisors: Dr. Juan Carlos Moure and Dr. David Vázquez
- Area of Study: Computer Vision and High Performance Computing
- Scholarship: PIF Autonomous University grant

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

- Dissertation title: A comparison of perceptual image quality metrics

Bachelor of Computer Science **2014**
Universitat Autònoma de Barcelona, Spain
- Dissertation title: A metric to measure the difference between images

Publications

Journal Papers

Self-Supervised Depth Completion for Active Stereo **2022**
F. Warburg, D. Hernandez-Juarez, J. J. Tarrio, A. Vakhitov, U. Bonde, & P. F. Alcantarilla
In *IEEE Robotics and Automation Letters (2022)* (**RA-L**)

3D Perception with Slanted Stixels on GPU **2021**
D. Hernandez-Juarez, A. Espinosa, D. Vázquez, A. M. López, & J. C. Moure
In *IEEE Transactions on Parallel and Distributed Systems (2021)* (**TPDS**)

Slanted Stixels: A way to represent steep streets **2019**
D. Hernandez-Juarez*†, L. Schneider*, P. Cebrian, A. Espinosa, D. Vázquez, A. M. López, U. Franke, M. Pollefeys, & J. C. Moure
In *International Journal of Computer Vision (2019)* (**IJCV**)
∗ Both authors contributed equally
† Work performed during an internship at Daimler AG

Conference Papers

A Multi-Hypothesis Approach to Color Constancy **2020**
D. Hernandez-Juarez, S. Parisot, B. Busam, A. Leonardis, G. Slabaugh, & S. McDonagh
In *Computer Vision and Pattern Recognition 2020* (**CVPR2020**)

Slanted Stixels: Representing San Francisco's Steepest Streets **2017**
D. Hernandez-Juarez*†, L. Schneider*, A. Espinosa, D. Vázquez, A. M. López, U. Franke, M. Pollefeys, & J. C. Moure
In *British Machine Vision Conference 2017* (**BMVC2017**)
Awarded as **Best Industry Paper**
∗ Both authors contributed equally
† Work performed during an internship at Daimler AG

GPU-accelerated real-time stixel computation **2017**
D. Hernandez-Juarez, J. C. Moure, A. Espinosa, D. Vázquez, & A. M. López
In *Winter Conference on Applications of Computer Vision 2017* (**WACV2017**)

Embedded real-time stereo estimation via Semi-Global Matching on the GPU **2016**
D. Hernandez-Juarez, A. Chacón, A. Espinosa, D. Vázquez, J. C. Moure, & A. M. López
In *International Conference on Computational Science 2016* (**ICCS2016**)

Technical Skills

Programming: C/C++, Matlab, Python, Java, SQL
Libraries: *Vision* (OpenCV, numpy), *Deep Learning* (PyTorch, Tensorflow, Caffe),

HPC (CUDA, SIMD, Intel intrinsics, OpenMP)
Others: LaTeX, MS Office

Languages

Spanish: Native Language
Catalan: Native Language
English: Fluent proficiency

Awards

Best Industrial Paper Award - BMVC **2017**

Fellowship

PIF-UAB - Doctoral fellowship **2015-2018**

SEBAP Mobility - Internship fellowship **2017**