Javier Ribera

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Experience

Co-founder — Oqullo Jan 2019 - Present

- Foot traffic analytics for property managers using existing network camera feeds.
- Developed a Multiple-Camera Multi-Target Pedestrian Tracking system.
- Technologies used: CNN, TensorRT, AWS, Person-ReID

Sr. Algorithm Engineer — Samsung 2019 - 2021

- Research and deliver Machine/Deep Learning models to evaluate the image quality of Samsung's new displays.
- Patent an objective visual quality evaluation of Samsung's display pipeline.
- Evaluated image quality, visualy and quantitatively, with Python and Matlab simulations of displays and the Human Visual System.
- Technologies used: PyTorch, CNN, FCN, MLP, ELM, PSNR, SSIM, SCIELAB, ISETBIO

Research Assistant — (ARPA-E Project) Video and Image Processing (VIPER) Lab, Purdue University 2016 - 2019

- Design a new loss function for object localization without bounding boxes with $\geq 90\%$ accuracy.
- Develop a system based on CNNs and FCNs for plant location and counting from UAV images.
- Use GANs for data augmentation.

Research Intern — Samsung Summer 2017

- Develop a new image fidelity metric that can model any display and also models the Human Visual System.
- Goal: Evaluate visually lossless compression in Samsung displays.
- Resulting metric is better correlated with subjective evaluation than state-of-the-art metrics.

Research Assistant — Video and Image Processing (VIPER) Lab, Purdue University 2015

Develop computer vision and image processing techniques for:

- Medical Imaging. Segment endocardium in echocardiograms and estimate heart ejection fraction.
- Visual Surveillance. Count people from videos. Improved accuracy by incorporating crowdsourcing.

Education

PhD, Electrical and Computer Engineering (Advisor: Prof. Edward Delp) Jan 2015 - Dec 2018
Purdue University *West Lafayette, IN*

BS, Telecommunications Engineering Sep 2009 - Dec 2014
Polytechnic University of Catalonia *Barcelona, Spain*

Publications (selected)

1. **"A machine learning approach to objective image quality evaluation"** – J. Ribera, G. W. Cook, D. Stolitzka, W. Xiong,
   Society of Information Display - Display Week, May 2019, San Jose, CA
2. **"Locating objects without bounding boxes"** – J. Ribera, D. Güera, Y. Chen, E. Delp,
   Computer Vision and Pattern Recognition (CVPR) Best Paper Finalist Award (Top 1% of accepted papers), June 2019, Long Beach, CA
3. **"A Subpixel-based objective image quality metric [...]"** – G. W. Cook, J. Ribera, D. Stolitzka, W. Xiong,
   Society of Information Display - Display Week, May 2018, Los Angeles, CA
4. **"Counting plants using deep learning"** – J. Ribera, Y. Chen, C. Boomsma, E. J. Delp,
   IEEE Global Conference on Signal and Information Processing (GlobalSIP), November 2017, Montreal, Canada
5. **"Locating crop plant centers from UAV-based RGB imagery"** – Y. Chen, J. Ribera, C. Boomsma, E. J. Delp,
   IEEE International Conference on Computer Vision (ICCV) Workshops, October 2017, Venice, Italy
6. **"Plant leaf segmentation for estimating phenotypic traits"** – Y. Chen, J. Ribera, C. Boomsma, E. J. Delp,
   IEEE International Conference on Image Processing (ICIP), September 2017, Beijing, China
7. **"Pill recognition using minimal labeled data"** – Y. Wang, J. Ribera, C. Liu, F. Zhu, E. J. Delp,
   IEEE International Conference on Multimedia Big Data, April, 2017, Laguna Hills, CA
8. **"Automatic and manual tattoo localization"** – J. Kim, H. Li, J. Yue, J. Ribera, L. Huffman, and E. J. Delp,
   IEEE International Conference on Technologies for Homeland Security, May 2016, Waltham, MA

Technical Skills

Programming	Python, C, MATLAB, Java, HTML5, Javascript, PHP
Libraries/Frameworks	TensorFlow, PyTorch, scikit-learn, Numpy, OpenCV, Git, AWS, GCP

Volunteering

- Reviewer for IEEE Signal Processing Letters
- LinuxUPC student society. Promoted and taught the use of open source software to university students.