Victor Vaquero, Ph.D.

Steadily Improving

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I am a challenge-driven Ph.D. thrilled to build products that solve real problems. I seek a career where my deep technical knowledge in Artificial Intelligence and Robotics, along with my problem-solving, negotiation and social skills would make a difference. I am an enthusiastic, proactive and innovative person eager to bridge between cross-functional teams helping them to achieve objectives.

Team Leader	Deep Learning	Python	Creativity
Inventor	Computer Vision	Matlab	Resilience
Problem Solver	Robotics	C++	Negotiation

Technical Experience

Research Intern — **Toyota Research Institute, (USA)**
Machine Learning — *Jun - Dec 2019*
Deep Learning for 3D object detection in point clouds.
- 5 patents submitted - PyTorch - Large scale repositories

Research Intern — **Valeo (Germany)**
Machine Learning — *Apr - Jul 2018*
Deep nets to segment "movable" objects from LiDAR data to create better maps.
- Project Leader - 2 Patents Filled - Data Definition & Capture - Team Building

Researcher, PhD — **IRI, CSIC-UPC (Spain)**
Machine Learning, Computer Vision & Robotics — *2013–2020*
R&D on European projects to automatize trucks and drones.
- Integration at Volvo (Sweden) and LAAS (France) - PhD candidate

Support Engineer — **HCTLab (Spain)**
Robotics & Human Machine Interaction — *2009–2011*
Defined and led robotic hand project. Support FPGA-based ultrasonic net of sensors.
- PCB design & soldering - Microcontrollers programming - Lab support

Management Experience

Organizer, Deep Learning Workshops — **International Conferences**
Deep Learning for Autonomous Driving (DLAD) — *2018–Present*
3D (IV'19); Beyond Perception (ITSC'19); 3Dv2 (IV'20); Federated Learning (ITSC'20)

PhD Students Representative — **IRI (CSIC-UPC), Barcelona**
Elected member for the Institute of Robotics board — *2017–2019*
Participant with vote at the Institute's boards in representation of the PhD students.

Office Administrator — **Sydney Lodges, Sydney**
Administrator in two of the busiest hotels in Sydney, Australia — *2011–2012*
Front desk position coordinating teams, managing reservations and attending guests.

Founder & President — **UAM, Madrid**
Campus UAM delegation of student association "Centro y Cultura" — *2010–2011*
Organizing and managing events and training courses on social skills for students.

Skills

- **DeepLearning:** PyTorch (High), TensorFlow (Med), Matconvnet (High)
- **Programming Languages:** Python (High), Matlab (High), C++ (Med), Bash (Med)
  Knowledge of: VHDL, HTML+CSS, Arduino
- **Soft Skills:** Team-builder; Leadership; Communicative; Excellent presentation and writing skills

Education

PhD Robotics, Vision & AI — **IRI (UPC-CSIC), Barcelona**
Institut de Robòtica i Informàtica industrial, Barcelona, Spain — *2015–2020*
PhD Thesis: Deep Learning-based Scene Understanding for Autonomous Vehicles.
Cum Laude Honorable Mention

MSc in Automatic Control and Robotics - 120 ECTS — **UPC, Barcelona**
Polytechnic University of Catalunya - Barcelona Tech, Spain — *2012–2014*
Awarded Competitive *"La Caixa"* scholarship (1/100).
Qualified third best student of the promotion.

BSc in Telecommunication Engineering - 315 ECTS — **UAM, Madrid**
Autonomous University of Madrid, Madrid, Spain — *Sep 2004– Jun 2009*
Erasmus scholarship abroad at *"University Degli Studi di Trento (Italy)."*
BSc thesis: Design, Build and Control a Robotic Hand for Fingerspelling Sing Languaje. Excellent

Additional Training

Entrepreneurship
Industrial Organization School (EOI), Barcelona, Spain — *2014*
From an idea to a business plan going through the viability analysis (150 hours)

Continous Formation: Technical, Management & Soft Skills
Presential and Online Courses — *Ongoing*
Project Management / Negotiation & Mediation / Non Verbal & Strategic Communication /
Team Work / ROS / Machine Learning / CNNs for Visual Recognition / HTML5 & CSS / ...

Languages

- English (Fluent)
- Spanish (Mothertongue)
- Italian (Medium)
- Catalan; French (Basic)

References

References are available on request

Publications

V. Vaquero, I. del Pino, F. Moreno-Noguer, J. Solà, A. Sanfeliu, and J. Andrade-Cetto, "Dual-branch cnns for vehicle detection and tracking on lidar data," *Transactions on Intelligent Transportation Systems (T-ITS)*, To appear 2020.

H. Rashed, M. Ramzy, V. Vaquero, A. E. Sallab, G. Sistu, and S. Yogamani, "Fusemodnet: Real-time camera and lidar based moving object detection for robust low-light autonomous driving," in *International Conference on Computer Vision - Autonomous Driving Workshop (ICCV-ADW)*, 2019.

V. Vaquero, K. Fischer, F. Moreno-Noguer, A. Sanfeliu, and S. Milz, "Improving map re-localization with deep 'movable' objects segmentation on 3d lidar point clouds," in *IEEE International Transportation Systems Conferenec (ITSC)*, 2019.

V. Vaquero, A. Sanfeliu, and F. Moreno-Noguer, "Hallucinating dense optical flow from sparse lidar for autonomous vehicles," in *IEEE International Conference on Pattern Recognition (ICPR)*, 2018.

V. Vaquero, E. Repiso, and A. Sanfeliu, "Robust and real-time detection and tracking of moving objects with minimum 2d lidar information to advance autonomous cargo handling in ports," *Sensors*, vol. 19, p. 107, 12 2018.

V. Vaquero, A. Sanfeliu, and F. Moreno-Noguer, "Deep lidar cnn to understand the dynamics of moving vehicles," in *IEEE International Conference on Robotics and Automation (ICRA)*, 2018.

V. Vaquero, G. Ros, F. Moreno-Noguer, A. M. Lopez, and A. Sanfeliu, "Joint coarse-and-fine reasoning for deep optical flow," in *IEEE International Conference on Image Processing (ICIP)*, 2017.

V. Vaquero, I. del Pino, F. Moreno-Noguer, J. Solà, A. Sanfeliu, and J. Andrade-Cetto, "Deconvolutional networks for point-cloud vehicle detection and tracking in driving scenarios," in *European Conference on Mobile Robotics (ECMR)*, 2017.

I. del Pino, V. Vaquero, B. Masini, J. Solà, F. Moreno-Noguer, A. Sanfeliu, and J. Andrade-Cetto, "Low resolution lidar-based multi-object tracking for driving applications," in *Robot 2017: Third Iberian Robotics Conference, Vol 694 of Advances in Intelligent Systems and Computing*, pp. 287–298, Springer, 2017.

V. Vaquero, E. Repiso, A. Sanfeliu, J. Vissers, and M. Kwakkernaat, "Low cost, robust and real time system for detecting and tracking moving objects to automate cargo handling in port terminals," in *Robot 2015: Second Iberian Robotics Conference, Vol 418 of Advances in Intelligent Systems and Computing*, pp. 491–502, Springer, 2016.

V. Vaquero, M. Villamizar, and A. Sanfeliu, "Real time people detection combining appearance and depth image spaces using boosted random ferns," in *Robot 2015: Second Iberian Robotics Conference, Vol 418 of Advances in Intelligent Systems and Computing*, pp. 587–598, Springer, 2016.