

Francesco Crocetti

Curriculum Vitae



- September, 2022 **PhD in Information Engineering**, *The University of Perugia*, Department Engineering (DI), Perugia, Italy.
- January, 2019 **Licence to practice as an Engineer**, *The University of Perugia*, Perugia, Italy
- September, 2018 **Master's Degree in Information and Automation Engineering**, *The University of Perugia*, Department Engineering (DI), Perugia, Italy.
- May, 2015 **Bachelor's Degree in Information and Electronic Engineering**, *The University of Perugia*, Department of Engineering (DI), Perugia, Italy

Research

- Febraury, 2023 – **Miur - Postdoc researcher - (Ricercatore a Tempo Determinato RTD-A)**, UNIVERSITY OF PERUGIA (ITALY), DEPARTMENT OF ENGINEERING, present *CUN Area: 09 - Industrial and information engineering, S.S.D : ING-INF/04*
- Febraury, 2022 – **Lecturer in Industrial Robotics**, UNIVERSITY OF PERUGIA (ITALY), DEPARTMENT OF ENGINEERING, present *CUN Area: 09 - Industrial and information engineering, S.S.D : ING-INF/04*
- November, 2019 – **Ph.D. Student**, UNIVERSITY OF PERUGIA, DEPARTMENT OF ENGINEERING, Perugia, Italy
- November, 2022
- March, 2022 – **J1 Visiting Student - (Internship)**, AGILE ROBOTICS AND PERCEPTION LAB (ARPL), NEW YORK UNIVERSITY, Brooklyn, New York
- October, 2022
- May, 2021 – **Miur - Research fellowship - (Assegno Ricerca)**, "*Liquid edge computing based on distributed machine learning and millimeter-wave radio access: study and validation of a testbed aimed at computer vision-based localization for autonomous robotic vehicles.*", February, 2023 UNIVERSITY OF PERUGIA (ITALY), DEPARTMENT OF ENGINEERING, *CUN Area: 09 - Industrial and information engineering, S.S.D : ING-INF/04*

- May, 2020 – **Miur - Research fellowship - (Assegno Ricerca)**, *"Perception, localization, navigation, and control techniques for mobile robots with application to precision farming"*,
 May, 2021 UNIVERSITY OF PERUGIA (ITALY), DEPARTMENT OF ENGINEERING,
 CUN Area: 09 - Industrial and information engineering,
 S.S.D : ING-INF/04
- April, 2019 – **Miur - Research fellowship - (Assegno Ricerca)**, *"Study and development of algorithms for parameter estimation and prognostic tools, with application to the aeronautic field"*,
 April , 2020 UNIVERSITY OF PERUGIA (ITALY), DEPARTMENT OF ENGINEERING,
 CUN Area: 09 - Industrial and information engineering,
 S.S.D : ING-INF/04
- January, 2019 **Miur - Research fellowship - (Assegno Ricerca)**, *"Study and development of data-oriented algorithms for models aimed at anomaly detection and prediction"*,
 – April 2019 UNIVERSITY OF PERUGIA (ITALY), DEPARTMENT OF ENGINEERING,
 CUN Area: 09 - Industrial and information engineering,
 S.S.D : ING-INF/04

Professional experience

- June, 2020 – **Co-Founder at RedlynxRobotics s.r.l.**, Via Mario Donati Guerrieri, 16 06132
 present Perugia (PG), Italy
- Type of employment: Co-founder and CTO.
 - Main activities and responsibilities: technical team supervisor, R&D.

Publications

[J] International Journals

- [J-10] Staffa, A., Palmieri, M., Morettini, G., Zucca, G., Crocetti, F., & Cianetti, F. (2023). Development and Validation of a Low-Cost Device for Real-Time Detection of Fatigue Damage of Structures Subjected to Vibrations. *Sensors*, 23(11), 5143.
- [J-9] Crocetti, F., Bellocchio, E., Dionigi, A., Felicioni, S., Costante, G., Fravolini, M. L., & Valigi, P. (2023). ARD-VO: Agricultural robot data set of vineyards and olive groves. *Journal of Field Robotics*, 40(6), 1678-1696.
- [J-8] Crocetti, F., Fravolini, M. L., Costante, G., & Valigi, P. (2023). Data-driven and uncertainty-aware robust airstrip surface estimation. *Neural Computing and Applications*, 35(26), 19565-19580.
- [J-7] Crocetti, F., Bellocchio E., Dionigi A., Felicioni S., Costante, G., Fravolini, M. L., & Valigi, P. . "ARD-VO: Agricultural Robot Dataset of Vineyards and Olive groves". *Journal of Field Robotics*
- [J-6] Crocetti, F., Fravolini, M. L., Costante, G., & Valigi, P. . "Dropout Neural Networks and Kalman Filtering for Robust online airstrip surface estimation for optimized Aircraft". *Neural Computing and Applications, Springer*.

- [J-5] Cartocci, N., Napolitano, M. R., Crocetti, F., Costante, G., Valigi, P., & Fravolini, M. L. . "Data-Driven Fault diagnosis Techniques: Non-Linear Directional Residual vs. Machine-Learning-Based Methods". *Sensors* 22 (7), 2635
- [J-4] Cartocci, N., Crocetti, F., Costante, G., Valigi, P., & Fravolini, M. L. . "Robust Multiple Fault Isolation Based on Partial-Orthogonality Criteria". *International Journal of Control, Automation and Systems* 20 (7), 2148-2158
- [J-3] Bellocchio, E., Crocetti, F., Costante, G., Fravolini, M. L., & Valigi, P. . "A novel vision-based weakly supervised framework for autonomous yield estimation in agricultural applications". *Engineering Applications of Artificial Intelligence*, 109, 104615
- [J-2] Cascianelli, S., Crocetti, F., Costante, G., Valigi, P., & Fravolini, M. L. . "Data-Based Design of Robust Fault Isolation Residuals Using LASSO optimization". *In 2019 International Conference on Control, Automation and Diagnosis (ICCAD)* (pp. 1-6) IEEE
- [J-1] Bellocchio, E., Ciarfuglia, T. A., Crocetti, F., Ficola, A., & Valigi, P. . "Modelling and simulation of a quadrotor in V-tail configuration". *International Journal of Modelling, Identification and Control*, 26(2), 158-170

[C] International Conferences

- [C-10] Brilli, R., Legittimo, M., Crocetti, F., Leomanni, M., Fravolini, M. L., & Costante, G. . Monocular Reactive Collision Avoidance for MAV Teleoperation with Deep Reinforcement Learning. *In 2023 IEEE International Conference on Robotics and Automation (ICRA)* (pp. 12535-12541). IEEE.
- [C-9] Denarda, A. R., Crocetti, F., Costante, G., Valigi, P., & Fravolini, M. L. . Enhancing Weakly Supervised Yield Estimation Through Learn-to-Pay-Attention Module. *In 2023 IEEE International Workshop on Metrology for Agriculture and Forestry (MetroAgriFor)* (pp. 307-312). IEEE.
- [C-8] Crocetti, F., Jeffrey M., Saviolo A., Costante, G., & Loianno G. . "GaPT: Gaussian Process Toolkit for Online Regression with Application to Learning Quadrotor Dynamic". *International Conference on Robotics and Automation - ICRA, 29th May - 2th June 2023* IEEE
- [C-7] Crocetti, F., Costante, G., Fravolini, M. L., & Valigi, P. . "Tire-road friction estimation and uncertainty assessment to improve electric aircraft braking system". *In 2021 29th Mediterranean Conference on Control and Automation (MED)* (pp. 330-335) IEEE
- [C-6] Cartocci, N., Crocetti, F., Costante, G., Valigi, P., Napolitano, M. R., & Fravolini, M. L. . "Data-Driven Sensor Fault Diagnosis Based on Nonlinear Additive Models and Local Fault Sensitivity". *In 2021 20th International Conference on Advanced Robotics (ICAR)* (pp. 750-756) IEEE
- [C-5] Cartocci, N., Costante, G., Napolitano, M. R., Valigi, P., Crocetti, F., & Fravolini, M. L. . "PCA methods and evidence based filtering for robust aircraft sensor fault diagnosis". *In 2020 28th Mediterranean Conference on Control and Automation (MED)* (pp. 550-555) IEEE

- [C-4] Cartocci, N., Napolitano, M. R., Costante, G., Crocetti, F., Valigi, P., & Fravolini, M. L. . "A Robust Data-Driven Fault Diagnosis scheme based on Recursive Dempster–Shafer Combination Rule". *In 2021 29th Mediterranean Conference on Control and Automation (MED) (pp. 1070-1075) IEEE*
- [C-3] Crocetti, F., Costante, G., Fravolini, M. L., & Valigi, P. . "A Data-Driven Slip Estimation Approach for Effective Braking Control under Varying Road Conditions". *In 2020 28th Mediterranean Conference on Control and Automation (MED) (pp. 496-501) IEEE*
- [C-2] Cascianelli, S., Crocetti, F., Costante, G., Valigi, P., & Fravolini, M. L. . "Data-Based Design of Robust Fault Isolation Residuals Using LASSO optimization". *In 2019 International Conference on Control, Automation and Diagnosis (ICCAD) (pp. 1-6) IEEE*
- [C-1] Ciarfuglia, T. A., Crocetti, F., Ficola, A., & Valigi, P. . "A preliminary experimental analysis of V-tail quad-rotor dynamics". *In Proceedings of 2014 International Conference on Modelling, Identification & Control (pp. 277-282) IEEE*