

ALESSANDRO BENINI

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RESEARCH SCIENTIST

Technically sophisticated engineering professional with solid history of effective design and development of autonomous systems. Bilingual in Italian and English.

AREAS OF EXPERTISE

- Detail-oriented, innovative professional with a demonstrated record of driving the success of science and engineering projects.
- Analytical professional skilled in developing powerful business solutions to maximize value and support growth of companies.
- Proven expertise in spearheading all phases of project life cycle, from initiation to completion.
- Superior collaboration and leadership skills, with proven expertise in directing, motivating, and guiding cross-functional teams to peak performance in high energy, deadline driven environments.

TECHNICAL PROFICIENCIES

Languages: C/C++, MatLab/Simulink, Object Oriented Programming

Embedded Platforms: PixHawk autopilot, OMAP L-138, BeagleBone, XMOS, Sensors, STM32 MCUs

Localization Systems: Kalman Filter, Inertial Sensors, GPS, Ranging Sensors

PROFESSIONAL EXPERIENCE

GERMANDRONES GMBH, BERLIN, GERMANY

Research Scientist (October 2017 – Present)

Led development of the autopilot firmware for the Songbird VTOL UAV. Management of research projects in collaboration with Universities. Research in the field of autonomous navigation of UAVs and fault diagnosis.

Software Engineer (April 2017 – September 2017)

Key contributor in the design, development, and testing of embedded software for autonomous navigation of Unmanned Aerial Vehicles. Documented software defects using bug tracking system and collaborated with teammates to ensure efficient testing and bug fixing process.

Key Achievements:

- Designed, implemented and delivered embedded software solutions consistent with the product roadmap and released plan milestones.
- Organized and conducted extensive field-testing of new firmware features for autonomous navigation of UAVs.

UNIVERSITY OF DENVER, DENVER, CO, USA

Research Scientist (April 2015 – December 2016)

Led research and development for wide range of projects, utilizing analytical, communication, and collaboration skills to capture project success. Strategically developed hardware and software for embedded systems, exploiting specially designed algorithms.

Key Achievements:

- Directed autonomous landing algorithms for rotary wing UAVs project, integrating vision, inertial sensor, parallel computing, and embedded CPU/GPU systems.

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ALESSANDRO BENINI

PAGE TWO

- **Patent Application:**

- A. Benini, M. J. Rutherford, K. P. Valavanis - *Image Processing for Pose Estimation*.
- Designed modular HW/SW framework for development of unmanned systems, performing development and testing of mechanical structures, sensors, communication systems, algorithms, and communication protocols to ensure success and reliability.
- Provided hardware and software support by performing extensive tests to debug systems, preventing system errors or malfunctions.

Adjunct Professor (January 2016 – March 2016)

Delivered exceptionally high-quality academic instruction and support to students at University of Denver. Prepared and delivered instruction for Computer Vision and Advanced Computer Vision classes.

Key Achievements:

- Taught ENCE 3620 and ENCE 4620 to Computer Science Majors enrolled at University of Denver
- Contributed to success of Computer Science Program by mentoring and guiding students.
- Supported University's vision and mission by modifying curriculum to accommodate diverse learning styles.

CIVITANAVI SYSTEMS, CIVITANOVA MARCHE, ITALY

Algorithm Engineer (February 2014 – March 2015)

Led design, development, and testing of algorithms necessary in providing quality software products. Collaborated with cross-functional team members in development of new products and functions while complying with Civitanavi System's policies and procedures.

Key Achievements:

- Developed Attitude Heading and Reference Systems (AHRS), Inertial Navigation Systems (INS) and North Finders Systems for Airborne applications, using Kalman Filter and embedded systems.
- Achieved project success using Civitanavi's proprietary Fiber Optic Gyroscope technology.

THALES ITALIA S.P.A., CHIETI, ITALY

Internship (January 2011 – December 2013)

Collaborated in the completion of the European Research Project ARTEMIS Joint Undertaking R3-COP (file number: ART-010000-2010-5). Achieved project goals of overcoming fragmentation of robotic sector through creation of cross-domain platform of methods and tools for design of usable autonomous systems. Additionally, contributed to research on Pedestrian Localization using MEMS IMU and UWB.

EDUCATION AND TRAINING

POLYTECHNIC UNIVERSITY OF MARCHE, Ancona, Italy

Ph.D. Degree, Automation Engineering

Thesis: "Localization and Navigation of Autonomous Systems in Complex Scenarios"

POLYTECHNIC UNIVERSITY OF MARCHE, Ancona, Italy

Master Degree, Automation Engineering (Summa Cum Laude)

Thesis: "Designing of a Simulation Environment for Fast Prototyping of Cooperating Avionics Systems"

POLYTECHNIC UNIVERSITY OF MARCHE, Ancona, Italy

Bachelor Degree, Automation and Computer Engineering

Thesis: "Designing and Development of Response Plans to Cyber Attacks"