Guglielmo Gemignani

Head of Robotic Integration

CONTACT

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EDUCATION

PhD Visitor

- **Carnegie Mellon University**
  CORAL Laboratory, 2014-2015

PhD in Robotics and Artificial Intelligence

- **Sapienza, University of Rome**
  Thesis: Acquiring Knowledge Through Multi-Modal Human-Robot Interaction, 2012-2016

Laurea Magistrale in Electronic Physics

- **Sapienza, University of Rome**
  Thesis: Study of the Readout System of a Microcapillary Position Detector Filled with Scintillating Liquid, 2010-2012

Laurea Triennale in Physics

- **Università degli studi di Pisa**
  Thesis: Numerical Solution of the Unidimensional Scrödinger Equation, 2007-2010

PROFILE

A robotics and AI expert with over a decade of hands-on experience in robotics and more than five years of leading engineering teams. Holds a PhD in Robotics and Artificial Intelligence, showcasing a solid foundation in both technical and leadership domains. Recognized for strong technical expertise and effective interpersonal skills, with a proven track record of innovation demonstrated through 20+ academic publications and four patents.

WORK EXPERIENCE

Head of Robotic Integration

- **Magazino - a Jungheinrich Company | Munich**
  August 2023 - Present

Disciplinary supervisor and technical lead for a team of 20+ developers spanning two companies, responsible for robot architecture design, behavior development, robot simulators and product quality assurance. The team specializes in developing high-level software for autonomous robots, including TORU, SOTO, and Jungheinrich's EAEa.

Keywords: SCRUM, SAFe, Product Owner, Product Requirements, Behavior Trees, ROS, Unity, Testing Strategy

Head of Robotic Integration

- **Magazino GmbH | Munich**
  March 2022 - August 2023

Served as the disciplinary supervisor and technical lead for a team of 15+ developers, overseeing robot architecture design, behavior development, robot simulators and product quality assurance. Also managed a commercial Behavior Tree-based framework, adopted by multiple multinational companies for developing autonomous robot behaviors.

Keywords: VDA5050, Integrator CLI, SW & HW QA, Gazebo, GitLab, Docker, Podman, Behavior Trees.

Team Lead Behaviors & Reasoning

- **Magazino GmbH | Munich**
  January 2018 - March 2022

Disciplinary supervisor and technical lead of a team in charge of robot behaviors development, data analysis, and SW QA. The team contributed to the development of three products: TORU, SOTO, ACROS.AI.

Keywords: Behavior trees, Automated planning, SW QA, Gazebo, Buildbot, Data Analysis, Pandas, Jupyter, GCP.

LANGUAGES

Italian	● ● ● ● ●
English	● ● ● ● ●
German	● ● ● ● ○
French	● ● ○ ○ ○

SKILLS

- Agile Development
- Nonviolent Communication
- Effective Leadership
- Python
- C++
- Prolog
- ROS

ADDITIONAL EXPERIENCE

- **Author, maintainer and contributor of various open and closed source projects**

  Repositories: ros/diagnostics, UP4ROS2, pyswip, PetriNetPlans, ros/geometry2, behavior_trees, robot_state_reasoning, topological_graph_planner, and others.

- **European Project Reviewer**

  Project: SciRoc (EU-H2020)

- **SPC, PC and Reviewer for various international conferences**

  Conferences: IJCAI, ECAI, AI*IA, and others.

- **International Research Project Contributor**

  Projects: AIPlan4EU (EU-H2020 funded project), RoboDevOps (Bavarian funded project)

- **Robocup 2013: Team Leader and coordination and behaviors developer of the SPQR team**

  Achieved 1st place at Iran Open 2013 & 3rd place at German Open 2013

Senior Robotics Software Engineer

- **Magazino GmbH | Munich**
  February 2017 - January 2018

Responsible for the development of behaviors, navigation and deployment for TORU, a cutting-edge robot recognized with multiple awards, including Best ROS-Based Product in 2020 and Best Product at LogiMAT in 2018.

Keywords: ROS, Behavior Trees, Django, Diagnostics, Prolog, Error modeling and Handling.

Robotics Software Engineer

- **Magazino GmbH | Munich**
  November 2015 - February 2017

Robot navigation and behavior developer.

Keywords: ROS, Move Base, Topological Graph Planner, NetworkX, Django, Behavior Trees.

SELECTED PUBLICATIONS

Patents

- *Testbench for robot behavior trees*. **G. Gemignani**, M. Maerz, C. Ngan. European Patent and Trademark Office, filed on May 7th, 2024.
- *Tasking robots using a job data structure.* **G. Gemignani**, R. Mansilla Martin, M. Grimm M. Maerz, M. Tenorth, C. Ngan. European Patent and Trademark Office, filed on May 7th, 2024.
- *Capabilities for error categorization, reporting and introspection of a technical apparatus.* **G. Gemignani**, M. Grimm, M. Tenorth. European Patent and Trademark Office, filed on August 8th, 2021.
- *Controlling an apparatus, e.g., a robot, with a behavior tree.* **G. Gemignani**. European Patent and Trademark Office, filed on February 4th, 2021.

Papers

- *Dialogue with Robots to Support Symbiotic Autonomy.* A. Vanzo, D. Croce, E. Bastianelli, **G. Gemignani**, R. Basili, D. Nardi. Dialogues with Social Robots, pp. 331-342, 2017.
- *Living with Robots: Interactive Environmental Knowledge Acquisition.* **G. Gemignani**, R. Capobianco, E. Bastianelli, D. D. Bloisi, L. Iocchi, D. Nardi. Robotics and Autonomous Systems, RAS 2016.
- *Planning for Automated Testing of Implicit Constraints in Behavior Trees.* U. Köckemann, D. Calisi, **G. Gemignani**, J. Renoux, and A. Saffiotti. International Conference on Automated Planning and Scheduling, ICAPS 2023.
- *Multi-Robot Search for a Moving Target: Integrating World Modeling, Task Assignment and Context.* F. Riccio, E. Borzi, **G. Gemignani**, and D. Nardi. International Conference on Intelligent Robots and Systems, IROS 2016. RoboCup Best Paper Award.

...full list of publications