

Formal education

- 2021–
current **PhD in Computer Science**, *Graz University of Technology (TUG)*, Graz, Austria
- 2018–2019 **Master's Degree in Advanced Mathematics and Mathematical Engineering**, *Polytechnical University of Catalonia (UPC)*, Barcelona, Spain, GPA: 10/10 (1st of class)
- 2013–2018 **Bachelor's Degree in Mathematics**, *Centre de Formació Interdisciplinària Superior (CFIS)*, UPC, Barcelona, Spain, GPA: 8.8/10 (top 10%)
- 2013–2018 **Bachelor's Degree in Physics Engineering**, *CFIS-UPC*, GPA: 8.3/10 (top 25%)

Professional Experience

- Feb. 2021 – **University Project Assistant**, *Graz University of Technology, Austria*
current Institute of Applied Information Processing and Communications
- Jan. 2020 – **Data scientist**, *BaseTIS, Barcelona*
- Feb. 2021 Artificial Intelligence Team.
- Sep. 2018 – **Teacher in Academy**, *Academia SOL, Barcelona*
- Jan. 2019 Supporting sessions for different subjects of Computer Science and Aerospace Technologies degrees.

Peer-Reviewed Publications

- 2024 Cano, F., Henzinger, T.A., Könighofer, B., Kueffner, K., Mallik, K., *Abstraction-Based Decision Making for Statistical Properties*, International Conference on Formal Structures for Computation and Deduction (FSCD)
- 2024 Judson, S., Elaqua, M., Cano, F., Antonopoulos, T., Könighofer, B., Shapiro, S.J., Piskac, R., *soid: a Tool for Legal Accountability for Automated Decision Making*, International Conference on Computer Aided Verification (CAV)
- 2024 Judson, S., Elaqua, M., Cano, F., Antonopoulos, T., Könighofer, B., Shapiro, S.J., Piskac, R., *'Put the Car on the Stand': SMT-based Oracles for Investigating Decisions*, ACM Symposium on Computer Science and Law (CSLAW)
- 2023 Cano Córdoba, F., Judson, S., Antonopoulos, T., Bjørner, K., Shoemaker, N., Shapiro, S.J., Piskac, R., Könighofer, B., *Analyzing Intentional Behavior of Autonomous Agents under Uncertainty*, International Joint Conference on Artificial Intelligence (IJCAI)
- 2023 Cano Córdoba, F., Palmisano, A., Fränzle, M., Bloem, R., Könighofer, B., *Safety Shielding under Delayed Observation*, International Conference on Automated Planning and Scheduling (ICAPS)
- 2023 Bjørner, K., Judson, S., Cano, F., Goldman, D., Shoemaker, N., Piskac, R., Könighofer, B., *Formal XAI via Syntax-Guided Synthesis*, Bridging the Gap Between AI and Reality (AISoLA)
- 2023 Bensalem, S., Katsaros, P., Nickovic, D., Liao, B. H.-C., Ruiz Nolasco, R., Abl El Salman Ahmed, M., Beyene, T. A., Cano, F., Delacourt, A., Esen, H., Forrai, A., He, W., Huang, X., Kekatos, N., Könighofer, B., Paulitsch, M., Peled, D., Ponchant, M., Sorokin, L., Tong, S., Wu, C., *Continuous Engineering for Trustworthy Learning-Enabled Autonomous Systems*, Bridging the Gap Between AI and Reality (AISoLA)
- 2022 Tappler, M., Cano Córdoba, F., Aichernig, B. A., Könighofer, B., *Search-based Testing of Reinforcement Learning*, International Joint Conference on Artificial Intelligence (IJCAI)

Technical Reports

- 2024 Deshmukh, J., Könighofer, B., Nickovic, D., Cano, F., *Safety Assurance for Autonomous Mobility (Dagstuhl Seminar 24071)*, Dagstuhl Reports, Volume 14, Issue 2, pp. 95-119, Schloss Dagstuhl – Leibniz-Zentrum für Informatik
- 2023 Könighofer, B., Kroll, J. A., Piskac, R., Veale, M., Cano, F., *Accountable Software Systems (Dagstuhl Seminar 23411)*, Dagstuhl Reports, Volume 13, Issue 10, pp. 24-49, Schloss Dagstuhl – Leibniz-Zentrum für Informatik
- 2017 Cano-Córdoba, F., Sarma, S., Subirana, B., *Theory of Intelligence with Forgetting: Mathematical Theorems Explaining Human Universal Forgetting using "Forgetting Neural Networks"*, Center for Brains Minds and Machines (CBMM) Memo No.71

Talks in conferences, workshops, and seminars

- Feb. 2024 **AGI Leap Summit, Virtual Event**, (remote)
Analyzing Intentional Behavior in Autonomous Agents under Uncertainty
- Aug. 2023 **Intelligent Decision Making Lab at USC**, (remote)
Safety Shielding under Delayed Observation
- Aug. 2023 **SafeRL Workshop at IJCAI**, Macao
Search-Based Testing of Reinforcement Learning
- Oct. 2022 **Continuous Engineering and Deep Learning for Trustworthy Autonomous Systems Summer School**, Aristotle University of Thessaloniki, Greece
Synthesizing Shields using TEMPEST
- Sep. 2021 **AI Team Seminar at BaseTIS**, Barcelona, Spain
Formal Methods for Safe Reinforcement Learning
- Sep. 2021 **RL-CONFORM Workshop at IROS**, (remote)
Improving RL by clever initialization: a case study playing Super Mario Bros
- Dec. 2019 **Einstein Workshop on Polytopes and Algebraic Geometry**, Freie Universität Berlin, Germany
Ehrhart positivity of generalized permutohedra
- Jul. 2019 **XVIII Spanish Meeting of Computational Geometry**, Universitat de Girona, Spain
Ehrhart positivity of orbit polytopes

Teaching

- 2021–2024 **Model checking**, TUG, Graz
Master course. Prepare and correct evaluation exercises, as well as substitute lecturer in case of need.
- 2021–2024 **Student co-supervision**, TUG, Graz, (together with Ass. Prof. Bettina Könighofer)
- MSc. Fabio Rutter. Autonomous Single-Molecule Manipulation via Deep Reinforcement Learning.
 - MSc. Stefan di Vora. Sending Mario back to school: an evaluation on how to speed up reinforcement learning using fuzzed traces.
 - MSc. Johannes Haring. Adversarially robust transfer learning for image classification neural networks.
 - BSc. David Broos. Safe Reinforcement Learning in Continuous State and Action Spaces.
 - BSc. Philipp Rafael Rathmanner. Probabilistic Modelling of Vehicle Simulations in Autonomous Driving.
 - BSc. Giacomo Pilotti. Continuous Action and Observation Space Environments for Reinforcement Learning.
 - BSc. Mohammad Milad Tufan. Safe mapless navigation through Double Deep Q-Learning shielded with RSS.
 - BSc. Lucy Burgstaller. Safe Reinforcement Learning in SafetyGym.

2016/17 **Student mentor**, *CFIS-UPC, Barcelona*
Mentoring sessions to 1st year CFIS undergraduates.

Peer-review activity

Conference reviewer ICLR (2025), IJCAI (2024)

Conference sub-reviewer AISoLA (2023, 2024), FMCAD (2021 - 2023), FoSSaCS (2025), KR (2024), OVERLAY (2024), RV (2022), TACAS (2023), VMCAI (2024)

Artifact evaluation CAV (2023, 2024), TACAS (2025), VMCAI (2024)

Internships

Oct. 2017 - **Bachelor Thesis**, *Massachusetts Institute of Technology (mobility program from UPC)*,

Aug. 2018 Auto-ID Laboratory, Supervisor: Brian Subirana, Auto-ID Lab Director
Theoretical study of artificial neural networks and Deep Learning algorithms.

Summer **Mobile App Development**, *BaseTIS, Barcelona*

2016 Development of a mobile application using Unity3D.
Supervisor: Rubén Fernández.

Jun. 2015 - **Math4Life Research Internship**, *Institute for Biomedical Research (IRB) Barcelona*,

Feb. 2016 Research group: Molecular modelling and bioinformatics, Supervisor: Modesto Orozco
Development of methods for computational simulation of circular DNA using Monte Carlo methods.

Languages

Catalan Native

Spanish Native

English Full proficiency

German Beginner (A2/B1)