



Nikolaos Sarantinoudis received the Electrical and Computer Engineering Diploma in 2018 from the Technical University of Crete. During his undergraduate studies he participated in TUCer team, which designs and builds urban concept vehicles powered by hydrogen, having won twice the 1<sup>st</sup> European Safety Award. Upon his graduation he worked as a researcher in the Technical University of Crete and then at the University of Surrey, developing digital maps for autonomus vehicle navigation. Moving to industry, he worked in an UK start-up targeting to revolutionize the way we charge electric vehicles. Since 2020 and up to 2024 he was part of InDIgo Group participating in EU and national funded projects applying technologies such as digital twins, data analysis and AI to industry. In addition, since 2021 he is a PhD Candidate in the “ Development of an Application Framework for Digital Twin-Driven Intelligent Autonomous Systems”. Recently, he received a Fulbright scholarship to perform part of his PhD as a Visiting Researcher in the University of South Carolina. Upon his return from the US, he is employed in MOTONIUS, a start-up he co-founded, designing and implementing innovative motorcycle technologies.

## Education

- 2021 – now: PhD in Production Engineering and Management  
Thesis:” Development of an Application Framework for Digital Twin-Driven Intelligent Autonomous Systems”
- 2012-2018: Msc in Electrical and Computer Engineering, Technical University of Crete  
Thesis:” Autonomous Navigation of an Electric Vehicle”  
GPA: 8.2 out of 10.0

## Teaching Experience

- Past
  - Laboratory Instructor in “Introduction to Electronics” for 1<sup>st</sup> year Electrical Engineering students in the University of Surrey

## Research Projects – Grants

- Past
  - 2020 – 2022:  
**FACTLOG**  
Role: Researcher

- 2020 – 2023:  
**AquaSPICE**  
Role: Researcher
- 2023 – 2024:  
**Plooto**  
Role: Researcher

## Research Interests

- Digital Twins
- Robotics & Autonomous Systems
- Industry 4.0
- Machine Learning – Artificial Intelligence
- Internet of Things
- Data Analytics

## Publications

### Conferences

1. **N. Sarantinoudis**, G. Tsinarakis, L. Doitsidis, N. Tsurveloudis and G. Arampatzis, "Bibliometric Analysis on Applications of Digital Twins in Autonomous Vehicles," 2023 31st Mediterranean Conference on Control and Automation (MED), Limassol, Cyprus, 2023, pp. 95-100, doi: 10.1109/MED59994.2023.10185874.
2. **N. Sarantinoudis**, G. Tsinarakis, L. Doitsidis, S. Chatzichristofis and G. Arampatzis, "A ROS-Based Autonomous Vehicle Testbed for the Internet of Vehicles," 2023 19th International Conference on Distributed Computing in Smart Systems and the Internet of Things (DCOSS-IoT), Pafos, Cyprus, 2023, pp. 726-733, doi: 10.1109/DCOSS-IoT58021.2023.00114.
3. **N. Sarantinoudis**, N. Vitzilaios and G. Arampatzis, "Applications of Digital Twins in UAVs," 2024 International Conference on Unmanned Aircraft Systems (ICUAS), Chania - Crete, Greece, 2024, pp. 450-457, doi: 10.1109/ICUAS60882.2024.10556896

### Journals

1. **N. Sarantinoudis**, G. Tsinarakis, P. Dedousis and G. Arampatzis, "Model-Based Simulation Framework for Digital Twins in the Process Industry," in *IEEE Access*, vol. 11, pp. 111701-111714, 2023, doi: 10.1109/ACCESS.2023.3322926.
2. Tsinarakis, G.; **Sarantinoudis, N.**; Arampatzis, G. A Discrete Process Modelling and Simulation Methodology for Industrial Systems within the Concept of Digital Twins. *Appl. Sci.* 2022, 12, 870. <https://doi.org/10.3390/app12020870>
3. J. Lu, G. Tsinarakis, **N. Sarantinoudis**, G. Arampatzis, X. Zheng, D. Kiritsis, "A semantic model-based systems engineering approach for assessing the operational performance of metal forming process", *Computers & Industrial Engineering*, Volume 190, 2024, 110042, ISSN 0360-8352, <https://doi.org/10.1016/j.cie.2024.110042>

## Work Experience

- Jul. 2024 – now

Motonius

Role: Co-Founder / CTO

*Co-founder and Chief Technology Officer at Motonius, a start-up that designs and builds innovative motorcycle technologies in order to increase safety, stability and grip as well as to integrate autonomy features into motorcycles.*
- Jan. 2021 – Jun. 2024

Technical University of Crete

Role: Researcher

*Researcher at Industrial and Digital Innovations Research Group (indigo), participating in EU-funded (Horizon 2020, Horizon Europe) projects. My main focus is the development and application of digital technologies in diverse problems, such as smart manufacturing, circular economy, environmental protection and climate change adaptation as well as raw material reuse and recycling. Some of the projects that I am participating are FACTLOG, AquaSPICE and Ploto.*
- Apr. 2020 – Dec. 2020

IPFT Fuels Limited

Role: Product Development and Integration

*Product development of an innovative autonomous electric vehicle charging system connecting to EV's underbody. Focusing on sensor selection, integration and software development for vision detection systems. The project was funded by Transport-Technology Research Innovation Grants (T-TRIG) from the Department for Transport, United Kingdom.*
- Apr. 2019 – Apr. 2020

University of Surrey

Role: Postgraduate Research Student

*Postgraduate research student in sensor fusion and digital map construction for autonomous vehicle navigation. Focusing on the fusion of camera systems and LIDARs for detection and classification in unstructured environments. Supervised by Dr. Saber Fallah.*
- Aug. 2018 – Apr. 2019

Technical University of Crete

Role: Research Associate

*Evaluation of the results and investigation on collaboration feasibilities with other cooperative coalitions regarding autonomous navigation systems as well as creation of promotional material for project SUNNY. Supervised by Prof. Nikolaos C. Tsourveloudis.*