Daniel Ulied

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Education

Universidad Miguel Hernandez de Elche, Elche, PhD in Telecommunications Engineering — February 2024 – *

- Supervisors: Miguel Sepulcre, Javier Gozalvez, M. Carmen Lucas-Estañ, Estela Carmona-Cejudo

University Ramon Llull, Barcelona, M.Sc in Telecommunications Engineering — Sept 2021 – June 2022

- Average Grade: 8.0
- **Coursework:** Telecommunication Networks and Systems, Telecommunication Subsystems Design Projects
- Honers: Master's Thesis

University Ramon Llull, Barcelona, BS in Telecommunications Engineering — Sept 2017 – June 2021

- Average Grade: 8.0
- Coursework: Digital Systems and Microprocessors, Radio-Frequency Technologies, Operating Systems, Circuit Theory
- Honors: Degree Thesis

Experience

Network Software Engineer, i2CAT Foundation – Barcelona, Spain — December 2022 –*

- Development of network protocol stack for safety-critical automotive D2D communication (FlexStack)
- Implemented CI/CD pipelines implementing tools such as: Flake8, Pylint, Unittests, Coverage to ensure code quality and reliability.
- Deployment on AWS (EC2, API Gateway, Cloudfront) for scalable V2X services.
- Managed and maintained Kubernetes clusters, ensuring high availability, scalability, and optimial performance.
- Developed an AI-powered operator that reduced energy consumption by up to 20% through workload migration.
- Built multiple Kubernetes testing tools, to provide performance benchmarks.
- Contributed to open source through Wireshark. V2X protocol contribution (Wireshark Merge Request)

Connectivity Engineer, Volkswagen Group (SEAT) – Barcelona, Spain — May 2021 – December 2023

- Vehicle safety team. Worked with V2X connectivity and the Autonomous Emergency Braking (AEB).
- Involved in collecting massive amounts of data from client vehicles regarding their AEB systems.
- Data analysis of first client-based study of an ADAS system in Volkswagen Group.
- Successfully led a project to minimize data extraction time and testing time. Reduced data extraction time from 8 minutes/vehicle to a couple of seconds.

Publications

Building an Interoperable SDV Ecosystem: A Network-as-a-Service Perspective — *Under Revision*

IEEE Vehicular Technology Magazine (Q1)

Daniel Ulied, Estela Carmona-Cejudo, Javier Gozalvez, M. Carmen Lucas-Estañ, Miguel Sepulcre, Jordi Marias-i-Parella

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Optimizing Energy Consumption of Kubernetes Clusters with Deep Reinforcement Learning — Jan 2024

26th International Conference of the Catalan Association for Artificial Intelligence. Invited for journal extension in the International Journal of Computational Intelligence Systems (Q2).

Alejandro Espinosa, ***Daniel Ulied***, Josep Escrig, Adriana Fernández-Fernández, and Rizkallah Touma

10.3233/FAIA240406

Demo: A Collision Avoidance System Integrating V2X Communication and Computer Vision for VRUs June 2023

2023 IEEE Vehicular Networking Conference (VNC)

Daniel Ulied, Jordi Marias-i-Parella, Estela Carmona-Cejudo

10.1109/VNC57357.2023.10136350

Projects

FlexStack (*Repository Link*) 2023-*

- Core contributor to FlexStack. A pure python implementation of the ETSI V2X protocol stack.
- Tools Used: Python

HE CODECO (*Repository Link*) 2024-*

- Designed and implemented a scalable, reliable V2X architecture, composed of multiple microservices, an Envoy proxy, Helm charts, and additional infrastructure components (V2X Use-Case Repository).
- Integrated and extended large, complex codebases from key partners such as the Eclipse Foundation, Red Hat, Siemens, and others to ensure seamless interoperability and robust system performance.
- Tools Used: Python, Kubernetes, Helm

DIMOS-5G 2024-*

- Deployed custom Road-Side Units (RSUs) in a real-world production environment, running the FlexStack platform to advise vehicles on safe maneuvers, through V2X messaging.
- Monitored, managed, and maintained RSU operations to ensure consistent performance and reliability throughout the project lifecycle.
- Tools Used: Kubernetes, Ansible, Prometheus, Grafana

SAVE-V2X 2023-2025

- Developed an Android application in Kotlin to transmit the location of vulnerable road users (VRUs) to the cloud over Websockets.
- Designed and implemented a V2X architecture on Amazon Web Services (AWS), leveraging services such as EC2, API Gateway, and CloudFront.
- Tools Used: AWS, Docker, Kotlin, Android, Python

Zero-SWARM 2022-2025

- Leveraged Time-Sensitive Networking (TSN) to develop a real-time, containerized remote operation module for a robotic arm.
- Integrated 5G and TSN technologies, and evaluated their performance in the context of remote robotic arm control.
- Tools Used: TSN, 5G, Kubernetes

Technologies

Languages: Python, Go, C

Technologies: Kubernetes, AWS, Helm, Ansible