CentraleSupélec *within*

IRISA, UMR CNRS 6074

INSTITUT DE RECHERCHE EN INFORMATIQUE ET SYSTÈMES ALÉATOIRES

Research axes

Irisa, Research Institute in Computer Science and Random Systems, is currently the largest French research laboratory (850+ people) in the field of computer science and information technology. The laboratory covers all the themes within these fields, from computer and network architecture to artificial intelligence, including, e.g., software engineering, distributed systems and virtual reality.

IRISA, is a joint laboratory of nine institutions, in alphabetical order CentraleSupélec, the CNRS, ENS Rennes, IMT Atlantique, Inria, INSA Rennes, Inserm and Rennes and South Brittany universities. Focused on the future of computer science at large, with internationally recognized expertise, IRISA is present on three sites in Brittany (Rennes, Lannion, Vannes), at the heart of a rich regional research and innovation ecosystem.

Its multidisciplinary approach gives rise to a force of women and men who give their best for the fundamental and applied research, training, exchanges with other disciplines, scientific mediation, know-how and technology transfer.

In order to remain at the leading edge of computer science and information technology, while accompanying the digital transition of society and other scientific disciplines, the laboratory is structured in seven scientific departments, along with seven transversal axes addressing societal challenges such as cybersecurity, health, environment and ecology, transport, robotics, energy, and culture.

The Rennes campus of CentraleSupélec houses one of the 40 teams of the laboratory.

CIDRE TEAM (Confidentiality, Integrity, Disponibility & Repartition)

CIDRE is a joint research group between Inria, Rennes university, CNRS and CentraleSupélec, focusing on the security of distributed information systems. The long-term ambition of the team is to contribute to build distributed systems that are trustworthy and respectful of privacy, even when some nodes in the system have been compromised.

With this objective in mind, the CIDRE group focuses on three different aspects of security, namely trust, intrusion detection, and privacy as well as on the bridges that exist between these aspects.

With this objective in mind, the CIDRE team focuses mainly on the three following topics:
- Attack comprehension
- Attack detection
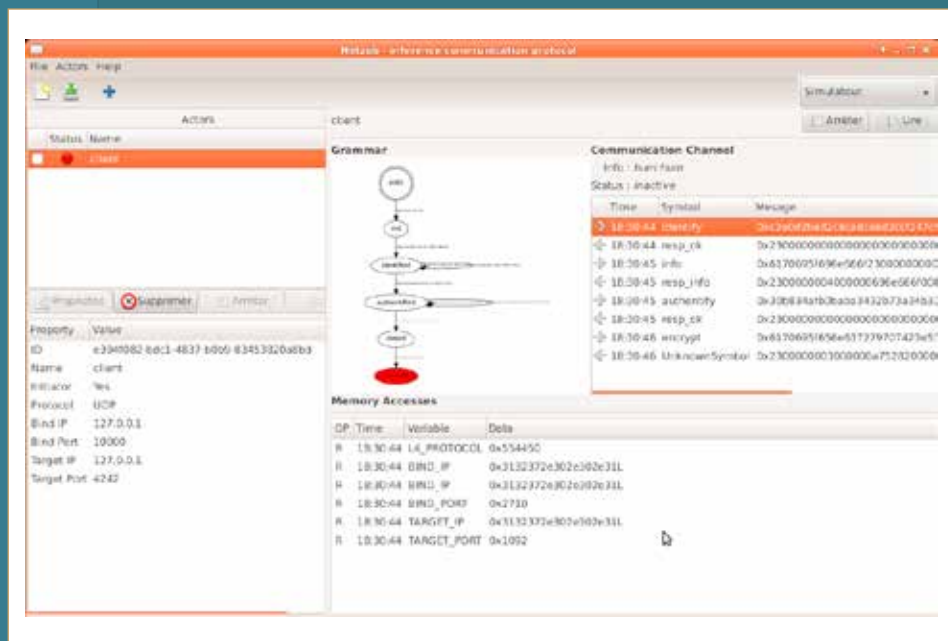- Attack resistance.

HIGHLIGHTS 2022

Outstanding paper award at 34th Euromicro Conference on Real-Time Systems (ECRTS 2022) for the article entitled "RT-DFI: Optimizing Data-Flow Integrity for Real-Time Systems"

New **PEPR Projects** accepted in 2022: DefMal (2022-2028), SecureEval (2022-2028), SuperviZ (2022-2028)

Several works carried out in 2022 in **CIDRE team** and published in the best conferences of the field. Among them, we would like to highlight the following publications:

* RT-DFI: Optimizing Data-Flow Integrity for Real-Time Systems. Published and presented at 34th Euromicro Conference on Real-Time Systems. This article received an outstanding paper Award.
* Debiasing Android Malware Datasets: How Can I Trust Your Results If Your Dataset Is Biased ? Published in Transactions on Information Forensics and Security. This work focuses on the quality assessment of malware datasets.
* Cerberus: Exploring Federated Prediction of Security Events. Published and presented at the ACM SIGSAC Conference on Computer and Communications Security. This article focuses on Federated AI for intrusion detection.

EXAMPLES OF STUDIES

Protocol Analysis with the Netzob software

Execution of Android malicious code with GroddDroid

VEGAS: security alerts visualization

Hardware information flow monitoring with HardBlare

Industrial Partners

- CISCO,
- Hackuity,
- HEWLETT-PACKARD,
- Malizen,
- NOKIA,
- OBERTHUR,
- ORANGE,
- THALES...

Academic Partners

University of Luxembourg, ENSI Bourges, ENSI Caen, IMT, INSERM, LabSTICC, LAAS, La Sapienza University, LIRIS, Nantes University, National University of Singapore, Technische Universitat and Hamburg-Harburg

Key figures*

• Professors, Associate Professors & Researchers	10
• PhD Students	12
• Visiting Professor	1
• Publications of the year (WoS)	6

*CentraleSupélec only

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