



Internet of Things & Applications Laboratory



2020/23



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ITHACA

The Internet of THings & AppliCations (ITHACA) Laboratory was established in 2020 as a research and teaching lab of the Department of Electrical and Computer Engineering, University of Western Macedonia, Kozani, Greece.

ITHACA conducts research and development in the field of Internet of Things and Applications with emphasis on smart systems, precision agriculture, telecommunication networks, and cybersecurity.



*ITHACA conducts
research in the following
fields:*

01 | Smart Power Grids and Cities

02 | Precision Agriculture

03 | Big Data, Interoperability and Management

04 | IoT applications for 5G

05 | Training and Distance Learning



ITHACA OBJECTIVES

Recent technological developments in Information and Communication Technologies allow the combined implementation of promising solutions in various application domains such as smart cities, agriculture and smart grids.

Internet of Things (IoT) provides effective mechanisms for collecting and processing real-time information, while supporting direct data access and decision-making mechanisms.

ITHACA aims at:



Scientific Excellence

- A** Conducting research on the IoT ecosystem, with emphasis on software & smart application development
- B** Advancing high-level research, published in high-impact scientific journals and conferences, as well as in organizing scientific lectures, workshops, seminars, symposia, conferences and other scientific events
- C** Interconnecting the local community with stakeholders in light of the meta-lignite area in the Region of Western Macedonia
- D** Leveraging applied research outputs to the society and the community



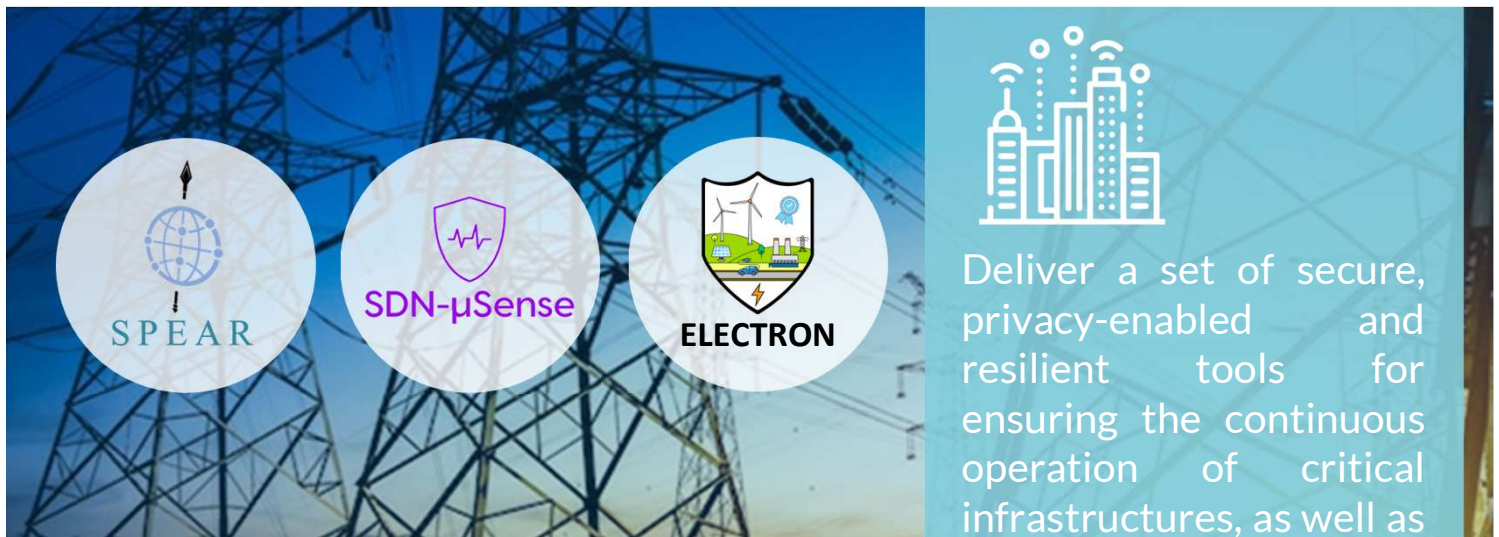
*Pledge to promote
broader scientific
goals in society*

Outreach

- A** Connecting ITHACA with productive sectors and bodies of society and economy
- B** Collaborating with International, European, and National Universities, Research Centers, Industries, SMEs, and Public Authorities for supporting, coordinating, and disseminating R&D projects.

Smart Power Grids

ITHACA promotes research in the areas of Smart Power Grids and Cities focusing on shielding critical infrastructures against advanced cyber threats. The lab coordinates 3 Horizon 2020 projects in the respective scientific areas.



Deliver a set of secure, privacy-enabled and resilient tools for ensuring the continuous operation of critical infrastructures, as well as the integrity and confidentiality of the communications.

Partners



CERTH
CENTRE FOR
RESEARCH & TECHNOLOGY
HELLAS



**National Technical
University of Athens**



ΑΔΜΗΕ
ΑΝΕΠΙΘΥΤΟΣ ΔΙΑΚΡΙΤΥΤΗΣ
ΜΕΤΑΒΟΡΑΣ ΗΛΕΚΤΡΙΚΗΣ ΕΝΕΡΓΕΙΑΣ



UBITECH
ubiquitous solutions

tecnalia

Inspiring
Business

**Schneider
Electric**



Atos

W3C®

ayesa

€

1.1M

Total Projects Budget in the
field of Smart Power Grids

Precision Agriculture

ITHACA promotes research in the field of Precision Agriculture and Smart Farming, focusing on digitizing the agriculture production in order to make it more profitable, viable, and sustainable. The lab coordinates (2) National EDK projects, (1) National – Regional project and (1) Erasmus + project.



Partners



FIAB

Federación Española de Industrias
de la Alimentación y Bebidas



INTERNATIONAL
HELLENIC
UNIVERSITY



Technical
University
of Crete



Reduce the cost of production, supervision of farms, volume of plant protection products applied and consequentially decrease the expenses of the farmer and also protect the environment by implementing innovative approaches



550+K

Total Projects Budget in the field of Smart Farming

Big Data Analysis

ITHACA promotes research in the field of Big Data Sharing and Analysis, focusing on interoperability and data management adhering to FAIR principles. The lab coordinates 1 Horizon 2020 project and 1 Erasmus+ project. Additionally, the lab participates in 1 Horizon Europe project in the respective scientific area.



Deliver state-of-art frameworks for enabling data analysis for assisting in decision-making processes while also fostering open access to large data volumes.

Partners

THESSALONIKI
INNOVATION
ZONE

Trinity
College
Dublin
The University of Dublin

STARTUP CYPRUS

University
of Cyprus

500+K

Total Projects Budget in the field of Big Data Analysis

Next-Generation Intelligent Networking

ITHACA promotes research in the areas of intelligent and autonomous networking for next-generation applications in the fields of Internet-of-Things and Beyond 5G communications. The lab coordinates 1 Horizon 2020 project and 1 Horizon Europe project in the respective research areas.



Partners



Introduce next-generation networking architectures for IoT and B5G communications based on cutting edge technologies, such as Software Defined Networking, Multi-access Edge Computing, Blockchain, and Artificial Intelligence.

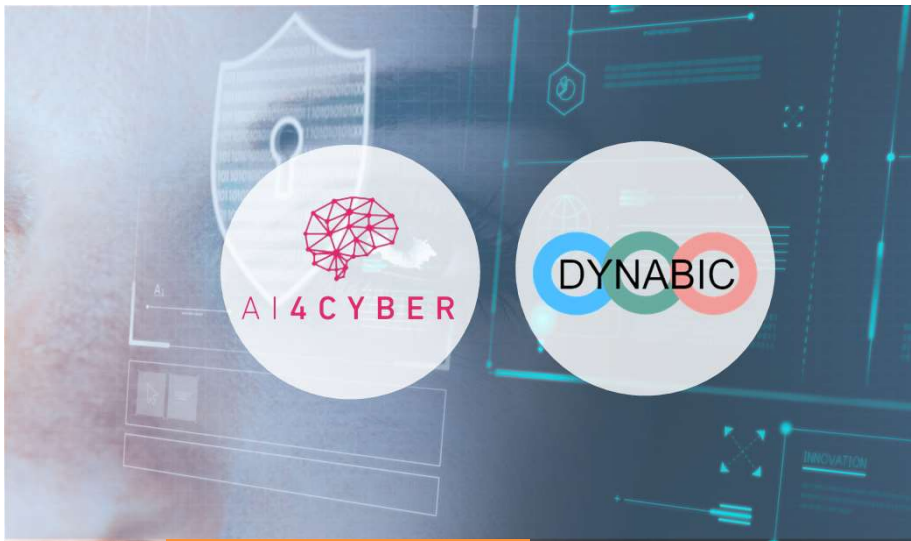


800+K

Total Projects Budget in the field of IoT Applications for 5G

Next-Generation Cybersecurity

ITHACA develops next-generation multi-level cybersecurity solutions by leveraging AI and Big Data technologies. The lab participates in 2 Horizon Europe projects in the particular scientific area.



Partners



Enhance the resilience and security of critical infrastructures, software, and processes against cyber threats by offering services for optimizing risk management and orchestrating appropriate countermeasures.



350+K

Total Projects Budget in the field of IoT Applications for 5G

Distance Learning

ITHACA designs tools for promoting safe distance learning and training focusing on critical topics, such as first responders training, cyber-hygiene education, and smart energy management. The lab coordinates 2 Erasmus+ projects and participates in 1 Erasmus+ project.



Partners

**Sheffield
Hallam
University**



método



SIDROCO

KEY

Software Company Ltd
Developing quality software solutions since 1996



Leveraging the latest advancements in digital technologies for assisting the distance learning and training processes.

€

150+K

Total Projects Budget in the field of Distance Learning

Award & Success Stories

ITHACA research team aims at excellence through high-level research.



Quality Indicators

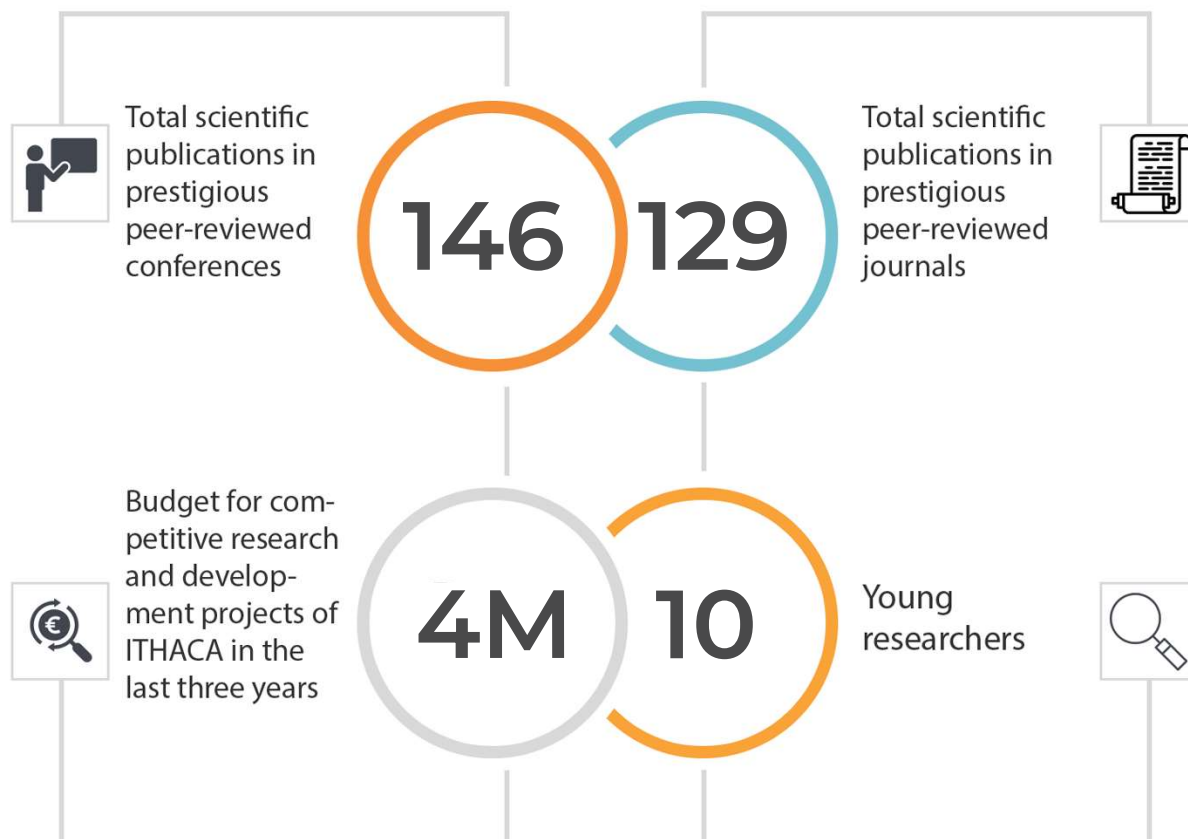
ITHACA is characterized by the following quality indicators

Indicative Scientific Journals

- IEEE Communications Surveys & Tutorials
- IEEE Wireless Communications
- IEEE Transactions on Industrial Informatics
- IEEE Internet of Things Journal
- IEEE Transactions on Communications
- Computer Networks
- IEEE Transactions on Network and Service Management
- IEEE Systems Journal
- IEEE Communications Letters
- IEEE Access

Indicative Conferences

- IEEE International Conference on Computer Communications
- IEEE International Conference on Communications
- IEEE Global Communications Conference
- IEEE International Symposium on Personal, Indoor and Mobile Radio Communications
- IEEE International Conference on Network Softwarization





Reach ITHACA...



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CONTACT US



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