FBK at Research Night 2025

September 30, 2025

From the batteries of the future to quantum selfies, from a robot that teaches healthy lifestyles to games set in historical contexts and parallel worlds that explore economic and social dynamics. The general public had the opportunity to discover and test all of FBK's research in a single night: Research Night.

As every year, the event brought together the key players of Trentino's research landscape: **Fondazione Bruno Kessler,** the **University of Trento, Fondazione Edmund Mach,** and MUSE—all engaging in dialogue and, above all, opening up to meet the student community and the wider public.

More than 3,000 attendees were counted during the evening event at MUSE—which hosted it on Friday, September 26, from 5 PM to midnight. Families, and many children, had the chance to explore the latest in scientific discovery, Visitors moved from one stand to another, between experiments, games and installations.

FBK presented 18 projects developed by as many research groups, representing the full breadth of the Foundation's expertise—from the humanities to the technical and scientific domains. In addition, two collaborative projects were featured: one with the University of Trento and one with the Edmund Mach Foundation. Even younger contributors had their moment in the spotlight—150 students from seven high schools in Trentino collaborated with FBK researchers on a study of gamma rays.

"Events like the Night of Research are essential moments when science steps out of the labs and into people's lives," said **Paolo Traverso, Director of Strategic Planning at FBK.**"They're also a valuable opportunity for researchers themselves, enabling them to connect across disciplines and spark new collaborations."

Projects:

- **SAVE WATER AT THE MOUNTAIN LODGE!**

"Framing water" is an interactive game that makes you think about water consumption when you are in the mountains, imagining the dynamics of a typical overnight stay at a mountain lodge. *Intelligent Interfaces and Interaction Unit – Center for Augmented Intelligence – FBK*

- **THE CITY AT WALLET'S FINGERTIPS**

By entering the City of Research, users can experience first-hand the digital identity wallet: what it is, how it works, and how it will transform one's relationship with public and private services. *Security & Trust Unit – Center for Cybersecurity – FBK*

- **THE HORSE'S PATH**

By practicing the rules of the ancient puzzle, it becomes easier to find strategies for decision-making. *Complex Human Behavior Unit – Center for Digital Society – FBK*

- **HOW SCIENCE UNMASKS MISINFORMATION**

Discover how social media is filled with potentially misinformed and harmful content, and how to make your digital experience more informed and responsible. *Complex Human Behavior Unit – Center for Digital Society – FBK*

- **HOLY AFFAIRS**

In Holy Affairs, each player becomes a Franciscan commissioner in one of the main European Catholic cities of the 17th century, working on behalf of the Custody of the Holy Land. The mission: ensure its survival in the Ottoman Empire. How will they succeed? *Italian-German Historical Institute*

- **PARALLEL WORLDS**

By answering questions based on scientific papers analyzing economic and social phenomena, we discover their mechanisms and results. *Institute for Evaluation Research on Public Policies*

- **PIZGAMMA**

150 students from 7 schools in Trentino worked with FBK researchers to create a sensor for studying gamma rays emitted during high mountain lightning events. *Custom Radiation Sensors*

Unit – Center for sensors & Devices – FBK

- - ○ **RENEWABLE HYDROGEN**

  With FBK researchers, participants can assemble an electrolysis cell and discover how renewable hydrogen is produced. *Hydrogen technologies and Resilient Energy Systems Unit – enter for Sustainable Energy – FBK*

    - ○ **BATTERIES FOR A SUSTAINABLE FUTURE**

  From lithium to cobalt, from vanadium to carbon: flow batteries and new-generation lithium batteries. Learn how battery recycling works and what hybrid storage is. *Battery and Electrification Technologies Unit – Center for Sustainable Energy – FBK*

- **MaGeE: THE ROBOTIC ARM THAT LISTENS, THINKS, AND GRABS**

With a voice or text command, the Tev00 robotic arm begins to execute requests — from impulse to movement, through reasoning. *Technology of Vision Unit – Center for Digital Industry – FBK*

- **RELAXING VR**

Augmented reality for relaxation and anxiety management: from a multisensory virtual hot tub to outer space; experience relaxation in the mountains or by the sea. *Digital Health Research Unit at the Center for Digital Health and Wellbeing – FBK*

- **LIFESTYLE COACHING WITH NAO**

The NAO "robot" offers tips on leading a healthy lifestyle. Try the nutrition quiz: multiple-choice questions with voice interaction about foods and their micro- and macronutrients. *Digital Health Research Unit at the Center for Digital Health and Wellbeing – FBK*

- **FROM SKETCH TO STYLE: FASHION DESIGNED BY AI**

Imagine drawing a dress with just a few hand strokes and adding a description: artificial intelligence transforms your ideas into realistic fashion images. *Deep Visual Learning Unit – Center for Augmented Intelligence – FBK*

- **THE MOST POWERFUL VIRUS IS THE USER'S HAND**

"*HoneyPeople*" responds to the need to protect companies and users from cyberattacks by simulating virtual personalities that interact with hackers to slow phishing attempts and more. *Distributed AI for dependent cyberSecuritY unit – Center for CyberSecurity – FBK*

- **NETWORK INTERFERENCE**

How is digital censorship constructed? What are its impacts and collateral damage? With FBK researchers, learn how to bypass censorship and enhance your online privacy and safety. *Distributed AI for dependent cyberSecuritY unit – Center for CyberSecurity – FBK*

- **LIGHT AND MICROCHIPS: A PHOTONIC INTERTWNING**

How can we control light and use it to transmit information? How can a computer interact with light? The answer lies in photonic microchips, which guide light through microscopic pathways. *Integrated and Quantum Optics Unit – Center for sensors & Devices – FBK*

- **LIGHT, TIME, SPACE: THE MAGIC OF 3D VISION**

A camera becomes an instrument capable of perceiving the world in 3D thanks to the single-photon LiDAR sensors developed by FBK's IRIS unit. *Integrated Readout Asics and Image Sensors Unit – Center for sensors & Devices – FBK*

- **QUANTUM SELFIE**

Go beyond classic imaging techniques to improve resolution: thanks to quantum physics, FBK researchers take selfies with a high-resolution image sensor developed for Quantum Ghost
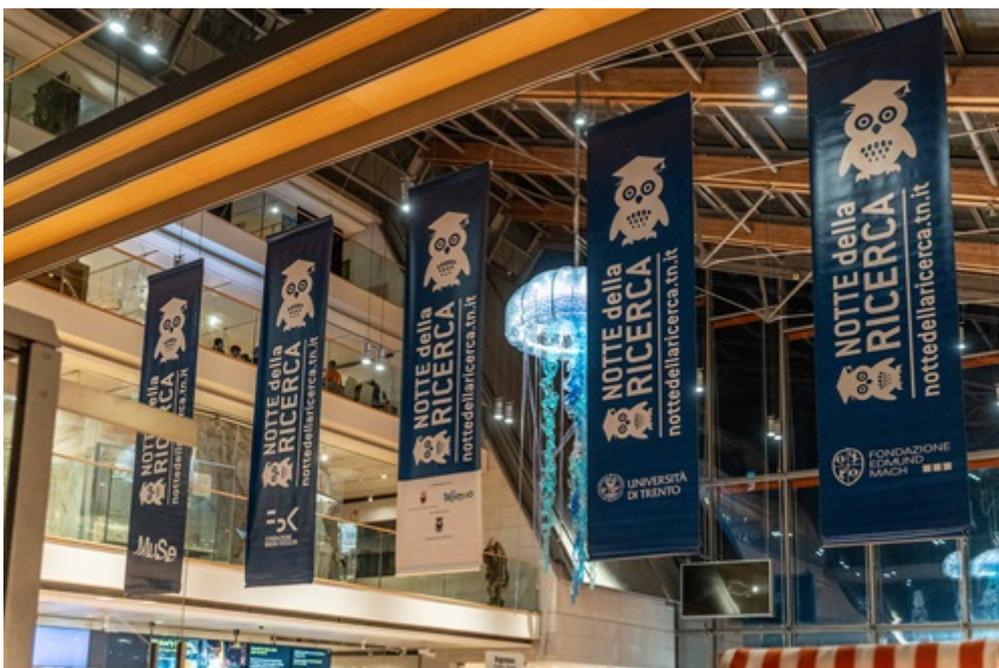
Imaging applications. *Integrated Readout Asics and Image Sensors Unit – Center for sensors & Devices – FBK*

- **A "ONE HEALTH" APPROACH TO CLIMATE CHANGE**

"One Health" is an integrated approach recognizing the interconnection between human, animal, and environmental health as a single system. Researchers from the provincial "One Health" table, coordinated by FEM and involving PAT, APSS, MUSE, FBK, MCR, UNITN, and CAL, presented studies on global health challenges like zoonotic diseases, antimicrobial resistance, and food-borne diseases. In addition, a new tool will be proposed that aims to promote collaboration between research and citizens: ZECCAPP, an app for the reporting of ticks in our region. *Centro Ricerca e Innovazione Fondazione Edmund Mach In collaboration with FBK*

- **DISCOVER THE MAGIC OF ENCRYPTION!**

Through interactive models, games, and demonstrations, learn the advanced theoretical concepts behind cryptographic techniques that protect digital life today and in the future — even against quantum computers. Discover techniques like Zero-Knowledge Proofs, Secure Multi-Party Computation, and Homomorphic Encryption made simple and intuitive. *Department of Mathematics – University of Trento. In collaboration with FBK*

- #augmentedintelligence
- #bet
- #chub
- #crs
- #cybersecurity
- #daisy
- #digital wallet
- #digitalhealthwellbeing
- #digitalindustry
- #digitalsociety
- #dvl
- #historicalstudies
- #i3
- #iQQ
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- #MaGe
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- #nottedellaricerca2025
- #publicpolicyevaluation
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- #ST
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- #tev
- #wallet

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