

The following document contains a description of the 12 platforms and research infrastructures that will be involved in the activities of the contract. For each platform, a brief description of the research equipment is provided, together with the research and industry areas potentially interested.

## **1 - Platform of Microscopy (PMiB)**

- Research equipment

### ELECTRON MICROSCOPY

1. Scanning Electron Microscope (SEM) Zeiss Gemini 500 with a Field Emission Gun (FEG). The microscope can operate with an accelerating voltage between 1 and 30 kV and has a nominal resolution of 1.2 nm.
2. Transmission Electron Microscope (TEM) Jeol 2100 Plus with a LaB6 emitter. The accelerating voltage can be set between 80 and 200 kV. The high-resolution objective pole piece allows a point-to-point resolution of 0.24 nm in TEM mode.
3. TEM JEOL 1220 with W emitter and accelerating voltage of 80-120 kV. The microscope is equipped with a TV rate camera and is particularly suited for fast observation of biological samples and routine morphological screening of nanoparticles.
4. SEM Tescan VEGA TS 5136XM with conventional W emitter and 0.3-30 kV accelerating voltage.
5. FEI Quanta 3D, a dual beam instrument coupling a Scanning Electron Microscope (SEM) with a Focused Ion Beam (FIB) column (Gallium ions), for sample cutting and machining (nanolithography).

### EM SAMPLE PREPARATION

1. Quorum Q150ES combined metal (Cr) sputtering and carbon coating system. The system allows, in a fully controlled and automatic way, the deposition of thin films with nm precision on non-conductive samples for SEM and TEM applications.
2. Edwards S150B sputter coater for Gold film deposition on non-conductive samples for high-resolution SEM applications.
3. Saphir Vibro vibratory polishing device designed for the preparation of virtually deformation-free specimen surfaces for EBSD applications.

### OPTICAL MICROSCOPY

1. Nikon A1R, equipped with hybrid Resonant and Galvano scan head for simultaneous photoactivation and image acquisition.
2. Olympus BX51 microscope adapted for two-photon and second harmonic generation in-vivo microscopy (equipped with MaiTai HP Ti:Sapph laser, Spectra Physics).
3. Leica SP5 confocal microscope with STED extension for in-plane optical resolution of 70 nm. Extension for two-photon excitation by coupling with Tsunami/Millennia Ti:Sapph laser (Spectra Physics).
4. Homemade Fluorescence Correlation Spectrometer (FCS) equipped with Ti:Sapph laser (Tsunami, Spectra Physics) for single spot measurements and FCS imaging.
5. Homemade All Reflective Raster Scanning Microscope equipped with EM-CCD for cross-correlation imaging.

- Research areas potentially interested

The services provided by the PMiB are required by a multitude of researchers and customers with different backgrounds and working in very different subject areas. Frequently faced themes relate on biotechnology applications, nano-medicine and nano-materials, semiconductors, airborne particulate matter, rock and mineral structure and microstructure.

- Industries potentially interested

Medicine, pharmaceuticals, biotechnology, antibacterial coatings, photothermal therapy, ceramics, electronics, mine industry, cement industry.

- Website link

<https://piattaformadimicroscopia.unimib.it/>

## **2 - Mass Spectrometry Infrastructure (MSI)**

- **Research equipment**

The Mass Spectrometry platform has 2 MALDI-TOF and 2 LC-MS. In addition, various instruments are also available for mono/bidimensional electrophoresis (2D-EF) and for antibody validation. The platform has also been implemented by specific servers and software for managing mass spectrometry data, imaging data and other specific applications.

- 1) Two MALDI-TOF instruments mainly used to obtain molecular signatures and molecular imaging in MS mode and identification of biomolecules (peptides / proteins / lipids / N-glycans) in MS/MS mode: Rapiflex and timsTOF flex (Bruker Daltonics). These mass spectrometers are of new generation with high precision and sensitivity.
- 2) Two mass spectrometers for the identification, characterization and quantification of peptides/proteins/lipids/metabolites: nLC-ESI-IT-MS / MS Amzon ETD (Bruker Daltonik), mainly for the characterization of PTM and nLC-ESI-Q (q) TOF Impact (Bruker Daltonik), with a mass accuracy in MS Mode and MS / MS lower than 3 ppm. These platforms are primarily dedicated for identification and quantification of proteins and metabolites. NanoLC-ESI-MS / MS (Bruker Daltonics): nanoLC Ultimate 3000 interfaced with ESI-ETD-MS / MS (Amazon-ETD) and nanoEASY-LC combined with Impact Qq-TOF.

The identity of proteins and peptides is obtained through Mascot (MatrixScience; in-house version) and Peaks Studio (Bioinformatics). The relative abundance of peptides and proteins in the samples, measured as a ratio, is calculated with Progenesis-QI (Waters) and Peaks Studio. MS-Imaging data is processed with SCILS (vers. 2016b) and with programs developed internally for specific purposes.

- **Research areas potentially interested**

Clinical areas: Biomarker discovery/validation & elucidation of pathogenetic molecular mechanism & drug resistance prediction.

Pharmaceutical areas: Characterization of drugs and of active compounds plus impurity detection and identification. Quantification of drugs in biological samples.

Food industry: identification and quantification of natural compounds in “food” for better quality assessment of the natural product and their derivatives.

- **Website link**

<https://www.medicina.unimib.it/en/business-services/research-activity-commissioned/mass-spectrometry-platform-proteomics-and-metabolomics>

## **3 - NMR for materials characterization**

### **1. Bruker ADVANCE III 600 MHz spectrometer**

- **Research equipment**

The Bruker ADVANCE III 600 MHz spectrometer is equipped with three probes suitable for the analysis of liquid, solid and heterogeneous samples.

The probe for liquid samples is a QCI ( $^1\text{H}$ ,  $^{13}\text{C}$ ,  $^{15}\text{N}$ ,  $^{31}\text{P}$ ) cryo-probe, with a sensitivity about 40 times higher than a conventional probe, and therefore particularly suitable for the analysis low-concentration samples such as for structural studies on biological macromolecules, or for rapid analysis of unstable samples, thus allowing the analysis of biological samples, such as unstable proteins or prone to change their folding or aggregation state over time.

The triple resonance ( $^1\text{H}$ ,  $^{13}\text{C}$ ,  $^{15}\text{N}$ ) 4 mm rotor HR-MAS probe allows the analysis of the molecular composition of tissue fragments from biopsies, cells suspensions, gels and, in general, heterogeneous samples.

A triple resonance double-broadband solid state  $^1\text{H}/\text{X}/\text{Y}$  MAS (2.5 mm MAS rotor) probe allows the application of CP-MAS, HETCOR and MQ-MAS techniques to detect structural information on a wide range of samples from materials science to polymers and biological systems.

A wide range of pulse sequences is available that allow you to perform the most common one-dimensional and two-dimensional experiments, as well as advanced experiments including:

- three-dimensional experiments (all triple resonance experiments currently used to solve the three-dimensional structure of polymers and macromolecules of biological interest);
- experiments specifically designed to study molecular recognition processes such as receptor-ligand, protein-protein, protein-nucleic acid, protein-polysaccharide interactions.

A wide range of samples containing molecules of chemical and biological interest:

- low and medium molecular weight molecules (drugs, metabolites, enzymatic modulators, synthetic intermediates);
- very high and very high molecular weight molecules (proteins, polysaccharides, nucleic acids), fragments of biological membranes and nanoparticles, fragments of cell organelles, cells, fragments of tissues.
- Research areas potentially interested
  - chemical areas, pharma areas (including nutraceuticals and cosmetics)
  - materials area (including crystalline materials and polymers)
- Website link  
<https://www.btbs.unimib.it/it/servizi-imprese/attivita%20ricerca-commissionata/altri-servizi-tariffario>

## **2. NMR Instrument AVANCE III HD 400MHz for solution samples**

- Research equipment  
 NMR Instrument AVANCE III HD 400MHz for solution samples, equipped with multinuclear SMART probe and autosampler. The probe is designed to observe <sup>1</sup>H, <sup>19</sup>F and all nuclei in the range 31P-15N. It is equipped with active screen coils for Z field gradients - maximum gradient intensity 50 Gauss / cm. A key feature of this probe is the ability to perform <sup>1</sup>H experiments with <sup>19</sup>F decoupling and <sup>19</sup>F experiments with <sup>1</sup>H decoupling. Bidimensional <sup>1</sup>H-<sup>19</sup>F experiments are also possible. It is equipped with an ATMA accessory for selecting nuclei and automatic probe tuning. The autosampler and the possibility to remotely control the instrument ensure high productivity.
- Research areas potentially interested  
 The Instrument provides identity characterization for organic and organometallic substances, and it is a fundamental tool for all industries involved in the synthesis of organic molecules and polymers. It is also critical for quality control. Mostly, NMR instruments are used in the pharma and fine chemical industries.
- Industries potentially interested  
 All those in the fine chemicals segment. Over the years we performed analyses for big companies (ENI, Pirelli, Radici, Bracco, Intercos) as well and several SME.

## **4 - Raman microspectroscopy Laboratory**

- Research equipment  
Raman spectrometer Horiba Jobin Yvon LabRAM HR Evolution. The system is equipped with an Olympus BXFM microscope for observations in transmitted and reflected light, connected to a 5Mpx camera (objectives: up to 100X, spot of about 1 μm). The presence of a motorized sample holder and of a confocal system allows the acquisition of profiles and bi- and tri-dimensional maps. The spectrometer has focal distance of 800 mm, it is provided with two laser sources, a green Nd laser (532 nm, 300mW power) and a near infrared laser (785 nm, 80 mW), and two diffraction gratings (1800 and 600 grooves/mm). The system is connected with a PC station provided with the Labspec 6 software in Windows 10 environment.
- Research areas potentially interested  
 Environmental and geological areas, cultural heritage areas, gemology areas, chemical areas, material sciences areas.
- Industries potentially interested  
 All industries in the above-mentioned areas interested in the in-situ 2D/3D nondestructive identification (micron and submicron scale) of the matter at the solid, liquid, and gaseous state (including contaminant identification, surface processes, disorder and structural modification detection).
- Website link

## **5 - Spectrometry instruments for chemical-morphological analysis**

### **1. Apparatus for Organic Molecular Beam Epitaxy (OMBE)**

- **Research equipment**  
It is a rather old (1997) custom apparatus consisting of a series of chambers where ultra-high vacuum conditions can be reached and equipped with six K-type source for molecular beams. It is used for the controlled deposition of thin films and heterostructures of organic molecular materials.
- **Research areas potentially interested**  
Materials science area, with specific interest on the physical properties and applications of organic semiconductors
- **Industries potentially interested**  
Samples and materials are of scientific interest, pre-industrial; some prototype devices have been fabricated, just as a test of the materials.

### **2. Spectrophotometer Lambda900**

- **Research equipment**  
It is a rather old (1998) instrument which permits transmission and reflection measurements in the UV-vis-spectral range; an integrating sphere also permits measurements of diffuse reflectance and transmittance. It is equipped with a depolarizer and polarizers for polarization sensitive measurements, with a goniometer for oblique incidence measurements, and with a cryostat for low temperature measurements.
- **Research areas potentially interested**  
Materials science, physics, and chemistry area, with specific interest on the optical properties of solid samples (bulk, thin films, multilayers).
- **Industries potentially interested**  
Any companies interested in the optical characterization of solid samples (in the last years, this instrument has been used for on several different samples from companies)

### **3. AFM Nanoscope V microscope**

- **Research equipment**  
It is a scanning probe microscope, equipped for detecting different signals, such as atomic force, electric force, magnetic force, and surface potential. Images at the  $\mu\text{m}$ - and  $\text{nm}$ - scale can be collected and a cell for samples in liquid environment is also available.
- **Research areas potentially interested**  
Materials science, physics, chemistry, biology areas, with specific interest on the surface morphology.
- **Industries potentially interested**  
Any companies interested in the characterization of surface morphology of solid samples.

### **4. Spectroscopic ellipsometer**

- **Research equipment**  
It is a rotating analyser ellipsometer working in the UV-vis-NIR spectral range, equipped with a powerful software for the data regression and analysis. It can be a proper complementary instrument with respect to the Spectrometer Lambda900.
- **Research areas potentially interested**  
Materials science and physics areas, with specific interest on the optical properties of solid samples.
- **Industries potentially interested**  
Any companies interested in the characterization of the dielectric response of solid samples.
- **Common Website link**  
<https://www.mater.unimib.it/it/ricerca/strutture-ricerca/laboratori-ricerca/laboratori-dipartimentali/laboratorio-ombe>

## **6 - Crystal growth and characterization laboratory**

- Research equipment
  - water thermostats with T up to 50 °C; minimum heating/cooling rate 0.01 °C/h
  - dry thermostats (metal blocks, heating belts, hot plates) with T up to 400°C; minimum heating/cooling rate 0.01 °C/h
  - tubular ovens with T up to 500 °C
  - heating stage for transmitted/reflected light microscopy with T from -190 °C to +600 °C
  - metallographic microscope with polarizers for transmitted/reflected light; Nomarski differential interference contrast; magnification up to 500 X
  - stereo microscopes with polarizers for transmitted/reflected light; magnification up to 225 X
  - digital cameras for image acquisition and time-lapse sequences
  - molecular pump for 10<sup>-4</sup> mbar vacuum
- Research areas potentially interested
  - growth of single crystals of organic and inorganic compounds from aqueous solutions, organic solvents, gels (silica, agarose, polyethyleneoxide), sublimation or physical vapor transport
  - crystal growth kinetics
  - study of polymorphism
  - computational modeling of crystal morphologies
  - kinetic effects of impurities/additives
- Industries potentially interested
  - fine chemicals
  - pharmaceuticals
  - pigments
  - cements
  - water treatment
- Website link  
[www.mater.unimib.it/en/research/research-areas/environment-and-energy-materials/crystal-growth-and-characterization-study-polymorphism](http://www.mater.unimib.it/en/research/research-areas/environment-and-energy-materials/crystal-growth-and-characterization-study-polymorphism)

## **7 - Biological characterizations for genome analysis**

Functional genomics attempts to describe gene (and protein) functions and interactions. Functional genomics make use of the vast data generated by genomic and transcriptomic projects (such as genome sequencing projects and RNA sequencing) with special focuses on the dynamic aspects such as gene transcription, translation, regulation of gene expression and protein–protein interactions. A key characteristic of functional genomics studies is their genome-wide approach to these questions, generally involving high-throughput methods rather than a more traditional "gene-by-gene" approach.

The study of genomics incorporates a wide variety of experimental, computational, and statistical methodologies and has been greatly accelerated in recent years with the advent of next-generation sequencing technologies, high-density molecular assays (e.g. microarrays, droplet PCR), and advances in computational biology and biostatistics.

The Integrated Genomic Platform BicOMICS offers a pipeline of Services to enable scientific discovery through multi-omics data-driven research.

BicOMICS proposes to tackle the Target/Biomarker Discovery Process by using the following up to date technologies divided into three major blocks:

- Technologies for Target DISCOVERY
- Technologies for Target VALIDATION
- Technologies for DATA ANALYSIS

- Research equipment
  - Affymetrix and Agilent Platforms (High-Throughput Transcriptome and Epigenome Profiling)
  - ThermoFisher - Ion Gene Studio S5 Prime System (Next Generation Sequencing, RNAseq and DNA seq, ATACseq etc)
  - Chromium 10x (Single Cells Analysis)
  - MALDI-TOF/TOF: rapiflex™ MALDI Tissuetyper™; MALDI-TOF/TOF: ultrafleXtreme™. Three liquid chromatography mass spectrometry (LC-MS) systems: NanoEASY-LC combined with Impact Qq-TOF (Bruker Daltonics); UHPLC-ESI-HRMS: 6546 LC/Q-TOF (Agilent); Ultimate 3000 coupled with TSQ Quantum™ Access MAX (Thermo-fisher Scientific) (High-Throughput Proteome and Metabolome Profiling)
  - ABI-3130 Genetic Analyzer (ThermoFisher ) (Sanger-based DNA sequencing for NGS Validation)
  - Agilent 2100 Bioanalyzer (Nucleic Acids Analysis)
  - ThermoFisher Real Time PCR 7900HT, QStudio 7K Flex Real Time PCR, QX200 Droplet Digital PCR (ddPCR) System (Bio-rad) (Target Validation by Gene Expression)
  - MMI / Nikon microdissection system (Cell Isolation by Molecular Imaging)
  - Tissue MicroArrayer Galileo CK3500 Aperio (Target Validation by Molecular Imaging)
  - Beckman Coulter MoFlo Astrios cell sorter (Target Validation by Cell Sorting and Analysis)
  - Lonza 4D Nucleofector (Target Expression for Functional Validation)
  - Operetta CLS High-Content system (Perkin Elmer) (Target Specific Cell based Assays)
- Research areas potentially interested
  - Personalized Molecular Medicine
  - Biomedical Sciences
  - Biology and Biotechnology Sciences
  - Agriculture and Plant Genomics
  - Pharmaceutical Companies
- Industries potentially interested
  - Italfarmaco spa
  - Molmed-Molecular Medicine
  - Novartis Farma spa
  - Roche spa
  - Axxam spa
  - Italian Biotech and Pharmaceutical Companies in general

## **8 - Biological characterizations for genome analysis**

The sequencing facility comprises a Bio-Fragment Analyzer (Bioptic Inc.), the Illumina MiSeq system (Illumina Inc.) and the equipment for DNA extraction from different materials and DNA-library preparation.

The core of the facility is the MiSeq System, which is a DNA-to-data sequencing platform integrating cluster generation, amplification, sequencing, and data analysis into a single instrument. MiSeq System is based on sequencing by synthesis (SBS) chemistry.

The main features of the system are:

- Support reading sequences up to 2 × 300 bp (paired end)
- Produce up to 14 Gb of high quality data
- Produce up to 20 million reads per run
- Open system compatible with third party library preparations

The main applications in life and environmental sciences are:

- sequencing of complete genomes of viral/bacterial strains of medical and industrial interest;
- ecology studies, which aim at obtaining the a complete characterization of the structure and functions of biological communities present in a wide range of natural and host-associate environments;
- sequencing and expression profile of target genes;
- the study and characterization of environmental DNA (eDNA) in different natural and

- anthropized environments.

### **9 - 3 Tesla NMR**

- Research equipment  
3 Tesla magnetic resonance imaging (MRI) scanner for human brain and body imaging (Philips Ingenia 3.0T CX) suited both for clinical and research studies. The scanner is equipped with a 32 -channel head coil, a 16-channel head-neck coil, a phased array body coil, an integrated phased array spinal coil, an MR-compatible audio-visual stimulation system and a response recording equipment for fMRI studies. The scanner is located within UNIMIB spaces at the San Gerardo Hospital in Monza.
- Research areas potentially interested  
Any research area that may need of in vivo high field magnetic resonance imaging to study the pathological and normal functioning of the human body and/or to explore the effect of drug and other therapeutical intervention, both for clinico-pharmacological studies and basic science studies.
- Industries potentially interested  
The scanner is currently used both for profit clinico-pharmacological studies, sponsored by pharmaceutical industries, but may be of interest also to biomedical ingeneering industries for testing adn developing new equipment for MRI imaging.
- Website link  
<http://bimr3t.unimib.it>

### **10 - Imaging platform for in vivo preclinical research**

- Research equipment  
The in-vivo imaging platform includes a 7T MRI system (operational 2022), a microCT, a near-infrared tomography system, and a bioluminescence imaging device. All the systems can image mice and rats and they are hosted into a SOP-operated, fully-barriered animal housing facility authorized for immunocompetent as well as immunodeficient animals and operating according to the EU Directive 2010/63/EU adopted in Italy as "Decreto legislativo 4 marzo 2014, n. 26".
- Research areas potentially interested  
Basic animal studies, pharma areas, in-vivo toxicology.
- Industries potentially interested  
All the Industries with a drug discovery pipeline requiring in vivo animal validation might be interested.
- Website link  
<https://www.enu.dcmi.unimib.it/>

### **11 - MiBTec/BicApP**

- Research equipment  
MiBTec (Mind and Behavior Technological Center) and BicApP (Bicocca Center for Applied Psychology ) are two advanced research centers that aim to drive early adoption of emerging technologies. They focus on deepening the human factors involved in the interaction with new devices and technologies, also from an economical point of view. The centers possess state-of-the-art devices allowing for collection of human variables and biometric signals (both subjective – questionnaire, momentary assessment, interviews - and objective – Electroencephalography, Electromyogram, Electro-dermal Activity, Heart Rate, Respiration rate, movement cinematic, thermography - measurements), as well as the expertise in the analysis of the human factors involved in a positive interaction with technologies, and more generally deep knowledge of the functioning mechanism of the human mind - the very core of expertise of the researchers working in the two centers. Finally, being born for applied research purposes in a multidisciplinary excellence scenario, the MiBTec and the BicApP research centers can rely on the most updated advances on scientific and technical knowledge (something that places them well

ahead of the current market situation) and on a large network of collaboration with experts on financial, marketing and business models in this sector.

### **Mibtec**

Hardware:

- 2 interactive CAVEs (3x3x2.5m) for the analysis of performance in interactive virtual environment (metaverses)
- More than 15 VR Oculus Rift, Quest 2 and HTC Vive viewers for the presentation of VR environments
- 2 HoloLens II for the presentation of augmented reality contents
- 2 Geomagic touchX for the simulation of haptic information (force feedback 6DOF)
- 2 Ultraleap Stratos for the simulation of tactile sensations via ultrasounds arrays
- Cyberith Virtualizer for the simulation of movements (walking) in infinite virtual environments
- Tobii2 portable eye tracker for in-field analysis of ocular movements
- EyeLink 1000 eye tracker for the high precision analysis of ocular movements
- Dynamic Driving simulator for the analysis of cognitive and motor parameters during driving experiences
- Static Driving simulator
- 8 cameras Optitrack system for infrared motion tracking
- 4 cameras Optitrack system for infrared motion tracking
- Professional 3D printer for prototyping
- Arduino platforms and sensors
- Brain Computer Interfaces (open BCI)
- 3D high resolution scanner
- 360° 4K cameras
- high-performance HP Omen and Dell Alienware workstations
- 2 Biopac Biometric data acquisition systems + sensors for analysis of physiological parameters
- Thermal Nociceptive stimulator, for the presentation of painful stimulation
- FLIR High resolution Thermo-camera for the acquisition of thermal data
- 2 Holographic projectors for the presentation of 3D content
- 24 channels digitally controlled Smell Delivery System for the presentation of odors and essences in the environment

Software availability:

Software development tools include the Unity3D graphics engine, supported by the MiddleVR plugin, and the C# programming language. These tools allow to create and enjoy simulated experiences characterized by high levels of immersion and visual fidelity, thus allowing to study human behavior in a natural way and in a wide range of situations.

The MiBTec provides scientific support and technologies to generate research or business solutions centered on human experience in Virtual and Augmented environments. It boosts and supports businesses ideas in the field of work, learning, sustainable and healthy behavior, marketing, product design, and health improvement. We contribute to the validation of software and environments (virtual, augmented or mixed) using scientifically proven, cutting- edge methodologies and instruments.

The MiBTec research center promotes applied research aimed at improving people's quality of life and encourages the development of usable and innovative technologies. MiBTec is a network of humanists and technologists, collaborating with private and public entities and scientific associations, both at the national and international level. The Center is also open to external academic and industrial business relations.

### **BicApP**

The BicApP aims to develop scientific research in the field of human factors and human interaction with mobile, wearable and portable technologies. Its infrastructures – HP workstations, wearable devices for biometric monitoring, test and research labs and UX/UI testing devices – allow applied research for the improvement of people's quality of life and for the development of usable and intuitive technologies.

The scientific center designs solutions for research and business, adopting User-Centred Design principles and psychological knowledge on factors deriving from adopting cutting edge technology.

The BicApP comprehends two laboratories, which cover a total space of 60m<sup>2</sup>.

It is one of the largest centers in Italy that allows theoretical and practical research on user experience, marketing, health, organizational development and behavior change.

The center facilities are equipped with:

- several Omen computer stations
- more than 10 different brand mobile devices and tablets running Android OS
- more than 80 wearable devices (e.g. Google fitbit)

These infrastructures represent a set of tools that enable data collecting on a variety of psychological and behavioral variables, all in a technological and innovative fashion (e.g: developing applications or using wearables).

The center also has its own user-friendly platform for the development of mobile applications, which allows researchers with few programming skills to develop prototypes, and test their effectiveness.

BicApP provides knowledge and technologies to generate research or business solutions centered on user experience. It boosts and supports business ideas to create wearable devices and applications in the field of work, learning, sustainable and healthy behavior, marketing and design.

The center also contributes to the validation of software and mobile apps, as well as wearable devices using scientifically proven and cutting-edge methodologies and instruments.

- Research areas potentially interested

Communication

Hard/soft skills training

Health

Human augmentation

Human-computer interaction

Informatics

Neurological/Psychological Rehabilitation

Neuroscience

Product Design

Psychology

Psychology of Marketing/Consumer neuroscience

Sustainability

Technology development

User experience

Wellbeing promotion

- Industries potentially interested

Architecture

Art/heritage

Automotive

Education

Entertainment/infotainment

Healthcare

Human resources

Luxury

Marketing

Retail

Tourism

Work safety

Work training

Educational training

Coaching

- Website link

[www.mibttec.it](http://www.mibttec.it), [www.bicapp.it](http://www.bicapp.it)

## **12 - Bicocca Data Science Lab (datalab)**

- Research equipment  
The datalab is a competence centre for data science endowed with cloud-based and on premises computational resources. We mainly provide virtual workstations on MS Azure, have two Linux servers and a physical lab with 24 workstations. We are able to quickly build data science teams of computer scientists, statisticians and machine learning people and domain experts for many different domains (energy, finance and banking, neuroscience, spatial data, etc).
- Research areas potentially interested  
all research areas in which advanced data analyses are needed. We are particularly experienced in the following fields of research: Time Series Analysis, Computational Neuroscience, Credit Risk Modelling, Data Management for AI, Bayesian Nonparametrics, Decision Systems Based on Reinforcement Learning, Automated Machine Learning and Bayesian Optimisation, Predictive Maintenance, Energy-Related Applications.
- Industries potentially interested  
All industries that need to extract information from data and use them to take decisions.
- Website link  
<https://datalab.unimib.it/>