



UNIVERSITY: Public University of Navarre (UPNA)

WIT AREA:

- Automotive, Mechatronics and Advance Manufacture**
- Health**
- Energy**
- AI (Spatial Statistics Problems)**

WIT PROGRAMME´S RESEARCH LINE NAME (choose one among the following):

Automotive, mechatronics and Advanced manufacture	Health	Energy
<ul style="list-style-type: none"> • RF/Microwave devices for satellite communications by 3D printing. • High capacity communications in THz • Development and manufacturing of multi-source energy Harvesting systems. • Smart materials, composite materials and nanomaterials in industry 4.0 • Additive manufacturing and 3D printing for the automotive industry • Development and advanced manufacturing of sensors • Eco-efficient Mobility Management in Sustainable Urban Transport. • Development and advanced manufacturing of sensors for continuous measurement of water quality in rivers and urban sanitation networks • Advanced fuel cell manufacturing • Magnetic sensors for automotive and mechatronic applications • Vehicle lightening and functional interior development 	<ul style="list-style-type: none"> • Hematology. Advanced therapies and diagnostic innovation • Pediatric oncology • Ophthalmology. Neurosciences and sense organs • Pharmacy. Biological Applicability Molecules • Preventive medicine. • Palliative care. • Cardiology. • Gene therapy. • Hepatology. • Immunology / immunotherapy • High capacity communications in THz. 	<ul style="list-style-type: none"> • New sources of renewable energy. • Network integration. • Intelligent electric micro-networks. • Power electronics. • Development of advanced materials and technologies for energy production. • Valorization of natural resources and waste.
Artificial intelligence applied to each of the previous research lines		
<ul style="list-style-type: none"> • Real-time data processing. • Image Processing. • Optimization and control of industrial processes. 	<ul style="list-style-type: none"> • Spatial Statistical Problems. • Other applications as a service in health, energy, etcetera. 	



DOCTORAL PROGRAMME: Doctorate in Mathematics and Statistics

<https://www.unavarra.es/escuela-doctorado/doctorate-programs/current-plan/science/doctorate-in-mathematics-and-statistics?languageId=1>

COMPLETE DESCRIPTION OF THE LINE

To investigate new prediction methods in the field of spatio-temporal disease mapping for lattice data and point reference data. To compare traditional techniques with machine learning techniques. To deal with big data problems. To investigate the possibility of including auxiliary data using satellite images.

RESEARCH GROUP NAME: SPATIAL STATISTICS

COORDINATOR: MARIA DOLORES UGARTE

<http://www.unavarra.es/pdi?uid=387>

- Department: **Statistics, Computer Science and Mathematics**
- Email: **lola@unavarra.es**
- Telephone number: **34-948169202**

MEMBERS OF THE LINE RESEARCH:

María Dolores Ugarte (Full Professor)

Tomás Goicoa (Full Professor)

Jaione Etxeberria (Associate Professor)

Aritz Adin (Associate Professor)

Guzmán Santafé (Associate Professor)



ANOTHER RESEARCH LINES OF THE GROUP:

Statistics in Remote Sensing (<https://spatialstatisticsupna.github.io/>)

- Entities involved in research lines and contact person:

Academic entities: Norwegian University of Science and Technology (Andrea Riebler), University of Glasgow (Duncan Lee), University of Minnesota (James Hodges), KAUST (Håvard Rue)

Industrial/Social/Health entities: Institute of Public Health of Navarre (Iván Martínez Baz)

- Joint supervision of doctoral thesis with international universities or non-academic institutions:

Norwegian University of Science and Technology / Institute of Public and Occupational Health of Navarre/ KAUST

- Brief group overview

Spatial Statistics is a research group dedicated to develop methodology and solve problems in the field of applied statistics in a broad sense. Currently, our research is focused on statistical modeling of spatial and spatio-temporal



processes with environmental and biomedical applications. Much of the methodological work is motivated by practical problems and case studies. The group aims to exchange knowledge, generate new thinking and work helping to solve real problems in many fields including remote sensing, one our new research areas. Collaboration with companies, other research groups, and public administrations has been our rule. Recently, the group has received a prize for the best applied statistical contribution ([SEIO-BBVA 2021 Prize given by an international committee](#)).

For additional info see:

<https://spatialstatisticsupna.github.io/>

ACADEMIC REQUIREMENTS: Master in Mathematics/ Computer Science/ Statistics/ Biostatistics/ Data Science/Artificial Intelligence or similar.

ADDITIONAL REQUIREMENTS: Excellent programming skills (R and Python), good English level (C1), to be familiar with Bayesian methods