Technological Sciences

CATALOGUE

Universidad de Alcalá

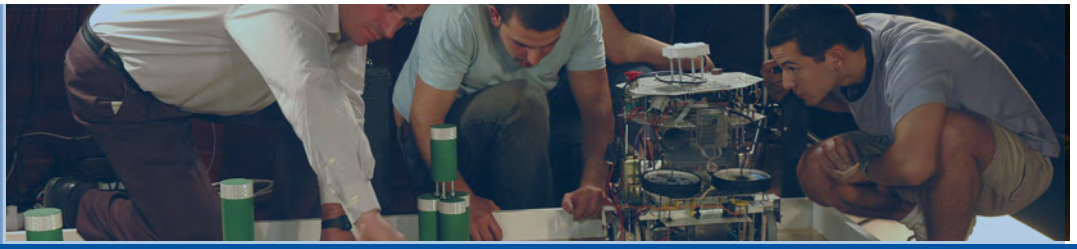
Comunidad de Madrid
Dirección General de Investigación e Innovación Tecnológica
CONSEJERÍA DE CIENCIA, UNIVERSIDADES E INNOVACIÓN

Universidad de Alcalá

Technological Sciences

- SIGNAL AND COMMUNICATION ANALYSIS AND THEIR APPLICATIONS
- COMMUNICATIONS, MULTI-RATE SYSTEMS AND BIOMEDICAL ENGINEERING
- COMPUTATIONAL ELECTROMAGNETISM
- MODERN EURISTICS AND NETWORK DESIGN
- ELECTRONIC ENGINEERING APPLIED TO SMART SPACES AND TRANSPORTATION
- ELECTRONIC ENGINEERING APPLIED TO RENEWABLE ENERGY SYSTEMS
- SMART MOBILE PLATFORMS
- MULTISENSORIAL ANALYSIS AND RECONGNITION GROU
- ACOUSTIC AND ELECTROMAGNETICAL SMART SENSOR NETWORKS AND SIGNAL PROCESSING
- NETWORKS AND INTELLIGENT SYSTEMS
- VIAL ROBOTICS AND ESAFETY
- ADAPTATIVE MICROWAVE SYSTEMS
- SMART SYSTEMS
- ADVANCED NUMERICAL TECHNIQUES
- GEOGRAPHIC INFORMATION TECHNOLOGIES AND TERRITORIAL ANALYSIS
- INFORMATION TECHNOLOGIES FOR TRAINING AND KNOWLEDGE
- INTELLIGENT VEHICLES AND TRAFFIC TECHNOLOGIES

Universidad de Alcalá



GEOGRAPHIC INFORMATION TECHNOLOGIES AND SPATIAL ANALYSIS

Code
587

TIGAT

RESEARCH AREA

Technological sciences, Social sciences

COORDINATOR

Montserrat Gómez Delgado

KEYW ORDS

Assets location, Modeling, Land use changes, Urban growth simulation, Geographic information systems

AIM

- Public sector: Administration in the field of land planning
- Private sector: consultancy on land, environment, health, archaeology and land planning related issues.

CONTACT

montserrat.gomez@uah.es
Teléfono: 5261
Departamento de Geología, Geografía y Medio Ambiente
Universidad de Alcalá
C/ Colegios, 2. 28801 Alcalá de Henares,
Madrid

TIGAT

ABOUT US

The term "Geographical Information Technologies" (TIG) encompasses a wide range of spatial analysis tools (GIS, cartography, remote sensing ...) used to collect and to analyze digital information on the territory, which constitute crucial tasks in economic and social development, in environmental management, in good governance and in public participation initiatives.
The group leads research on the application of GIT to these areas since the early times of GIS in the 1990's. Our main objective is to apply research on GIT to various territorial issues, to contribute to enhance land planning and to offer products and services based on geolocated information to the public sector, to the citizens, and to the industry.

RESEARCH LINES

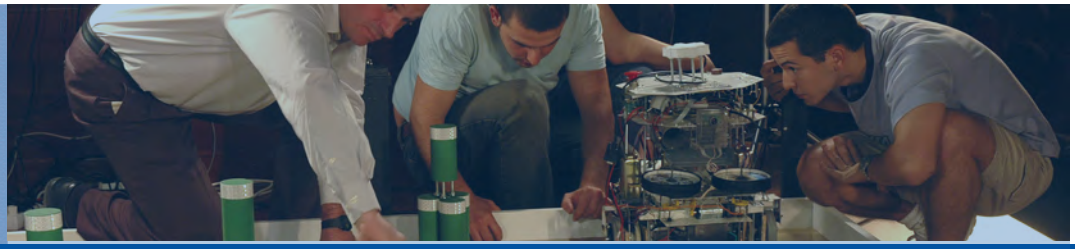
- Application of GITs to socio-territorial issues (land use changes, location of assets and facilities, risk mapping, simulation of urban growth, etc.)
- Geography of plants and vegetation
- GIS and health
- Thematic mapping
- GIT in Geography education

OFFERED SERVICES

- Consulting on diagnosis and optimal location of assets and facilities for public and private use, risk mapping, land use change modeling.
- Land planning: analysis and simulation of urban growth and its sustainability.
- Scientific production of thematic cartography, design and production of thematic atlases, mapping of landscapes, tourist resources, etc.
- Geographical analysis and mapping of flora and vegetation
- Advice, training, professional development in GIT

MARKETABLE RESULTS

Universidad de Alcalá



INTELLIGENT VEHICLES AND TRAFFIC TECHNOLOGIES

Code
602

INVETT

RESEARCH AREA

Technological Sciences

COORDINATORS

David Fernández Llorca
Ignacio Parra Alonso

KEY WORDS

Intelligent Vehicles
Traffic Technologies
Predictive perception
Intelligent sensors and sensing

AIM

- Maintenance and integration companies of intelligent transport systems
- Technology companies of traffic infrastructure management

CONTACT

david.fernandezl@uah.es
Tlfn: 918856682
Dpto. Automática
Edificio Politécnico Superior
Campus Universitario, Ctra. Madrid-Barcelona km, 33, 600, 28805
Alcalá de Henares, Madrid

INVETT

ABOUT US

The INVETT group carries out its activity in the area of last generation sensors and advanced processing systems to develop high-resolution multimodal and three-dimensional perception systems for intelligent vehicles, autonomous vehicles, intelligent transportation system and smart city applications. The main research lines include the following: predictive perception systems, user-based autonomous vehicle design, interaction between autonomous vehicles and vulnerable road users, advanced vehicle and traffic perception and modeling systems, assistive intelligent transport systems, etc.

RESEARCH LINES

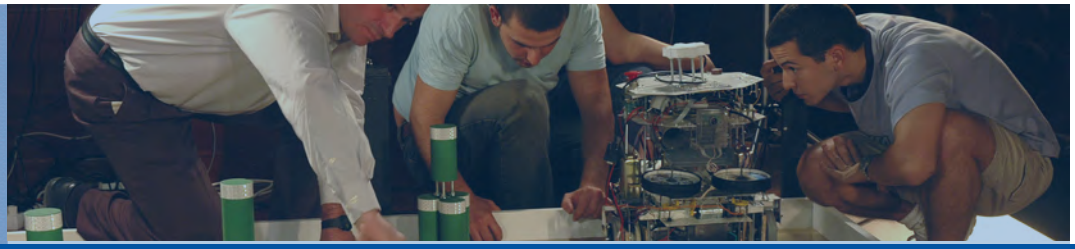
- Intelligent Vehicles
- Predictive percepction for automated driving and traffic control
- Cooperative automated driving
- End-user oriented intelligent vehicles
- Automatic infrastructure inspection technologies
- Assistive intelligent transportation systems

OFFERED SERVICES

- Research and development in intelligent systems applied to traffic infrastructure management, multimodal sensing systems, predictive modeling systems for road users, infrastructure inspection, vehicle identification, speed detection, etc.
- Design of customized intelligent sensing applications for contexts related to transport, autonomous vehicles and intelligent infrastructures.

MARKETABLE RESULTS

Universidad de Alcalá



MULTISENSORIAL ANALYSIS AND RECONGNITION GROU

Code
620

GRAM

RESEARCH AREA

Technological Sciences

COORDINATOR

Saturnino Maldonado Bascón

KEY WORDS

Pattern recognition,
Functional diversity,
Asistencial robotics

CONTACT

saturnino.maldonado@uah.es
Teléfono:+34918856694
Dpto. Teoría de la Señal y Comunicación
Edificio Politécnico
Campus Universitario, Ctra. Madrid-Barcelona km, 33, 600, 28805
Alcalá de Henares, Madrid

ABOUT US

Recognition techniques used for the analysis of different kind ofsensors: from image to force signals. Devolopment of technical aidsfor people with functional diversity.

RESEARCH LINES

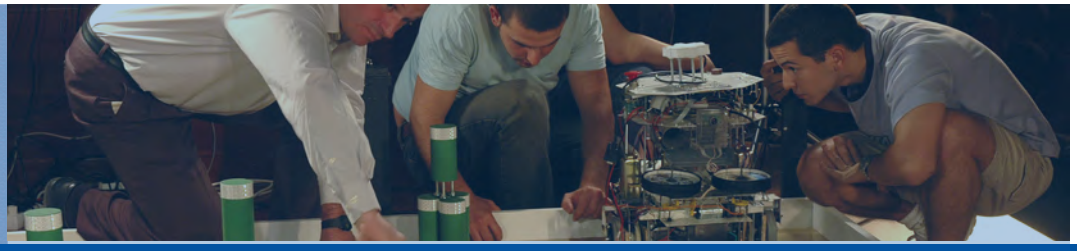
- Artificial intelligent
- Assitencial robotics

OFFERED SERVICES

- Motorized children's wheelchairs
- Walkers for children with cerebral palsy
- Motorized elliptical for children with motor difficulties
- Sensorized systems

MARKETABLE RESULTS

Universidad de Alcalá



COMMUNICATIONS, MULTIRATE SYSTEMS, AND BIOMEDICAL ENGINEERING

Code
746

COMB

RESEARCH AREA

Technological Sciences

COORDINATOR

Manuel Blanco Velasco

KEY WORDS

Machine Learning, OFDM, Communications, Electrocardiogram, Pain

AIM

- Telecommunication area
- Companies in the area of health sciences

CONTACT

manuel.blanco@uah.es
Tlfn: 6708
Dpto. Teoría de la Señal y Comunicación
Edificio Politécnico Superior
Campus Universitario, Ctra. Madrid-Barcelona km, 33, 600, 28805
Alcalá de Henares, Madrid

ABOUT US

The group focuses its scientific activity on the design and implementation of sub-band signal decomposition techniques for their treatment, codification, and transmission using multi-carrier systems. The purpose is the development of new communication techniques as well as systems to detect pathologies based on the above methods.

RESEARCH LINES

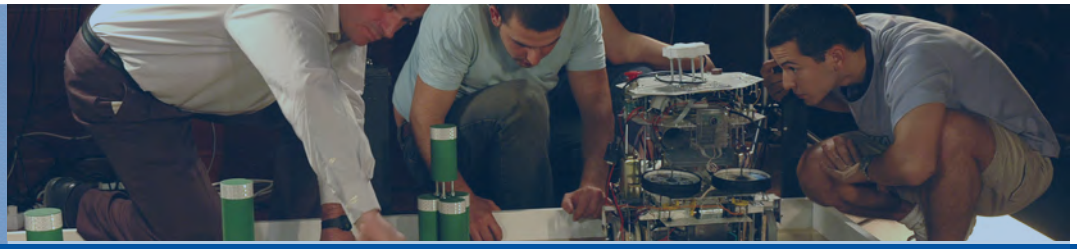
- Design of broadband transceivers for Powerline Communications (PLC), wired or fiber (xDSL), and wireless communications (WiFi, WIMAX, LTE, LTEA…)
- Channel estimation and synchronization techniques in redundant data communications (multi-carrier and single carrier)
- Signal processing for broadband communications
- Biomedical signal processing
- Efficient multimedia encoders
- ECG signal encoders
- Alternas detection of ventricular repolarization
- Pain and stress analysis

OFFERED SERVICES

- Design of optimization methods for designing prototype filters
- Fast and efficient algorithms for its implementation
- Design of multi-carrier modulators for data transmission through state-of-the-art communication systems (wireless and xDSL)
- Development of communication channel simulator (technology xDLS)
- Design o high quality audio encoders for low delay applications
- Design of quality on-demand encoders of electrocardiogram (ECG) with high compression ratio
- Design and implementation of biomedical signal processing algorithms
- Application of machine learning to detection and classification applications

MARKETABLE RESULTS

Universidad de Alcalá



NETWORKS AND INTELLIGENT SYSTEMS

Code
811

NetIS

RESEARCH AREA

Technological Sciences

COORDINATOR

Juan Ramón Velasco Pérez
Juan Antonio Carral Pelayo

KEY WORDS

Cybersecurity, Computational Geometry, IoT, Ontologies, Optimization, Complex Networks, Networks and Network Services, SDN and NFV

AIM

- Information & Communication Technologies
- Cybersecurity and Cyber Defense

CONTACT

juanantonio.carral@uah.es
Tlfn: 6625
Dpto. Automática
Edificio Técnico Superior
Carretera Madrid-Barcelona, Km 33.100, 28805
Alcalá de Henares, Madrid

NetIS
Grupo de Redes y Sistemas Inteligentes

ABOUT US

Our aim is to contribute to society through research, technological development and the training of specialized personnel in the field of information and communication technologies, especially in relation to networks and network services, optimization of complex networks, intelligent transportation and decision support system.

RESEARCH LINES

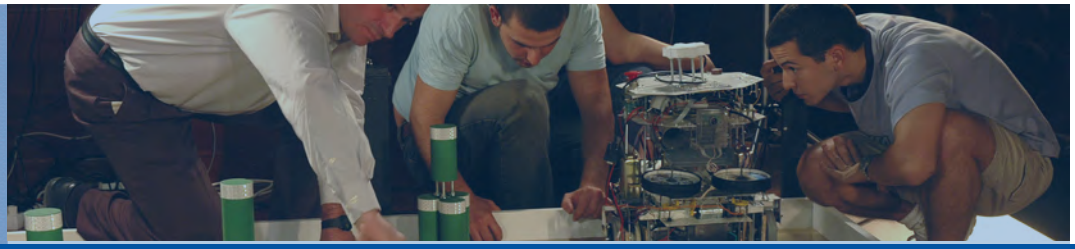
- Optimization of complex networks
- Wireless, vehicular, sensor and 5G networks
- Security of networks and systems
- Intelligent transportation and traffic management systems and services
- Decision support systems
- Network virtualization, programmable networks and cross-platform switches

OFFERED SERVICES

- Technological consulting
- Technological development
- Specialized training

MARKETABLE RESULTS

Universidad de Alcalá



ADVANCED NUMERICAL TECHNIQUES

Code
826

GTNA

GTNA

RESEARCH AREA

Technological Sciences

COORDINATOR

Óscar Gutiérrez Blanco

KEY WORDS

Radiopropagation,
Auto guided vehicles,
Precision agricultures

AIM

- Precision farming

CONTACT

oscar.gutierrez@uah.es
Dpto. Ciencias
de la Computación
Edificio Politécnico
Campus Universitario
Ctra. Madrid-Barcelona km,
33, 600, 28805
Alcalá de Henares
Madrid

ABOUT US

The group is researching in the Development of applications for the simulation of radio propagation in open areas and applications for auto guided vehicles in precision agriculture.

RESEARCH LINES

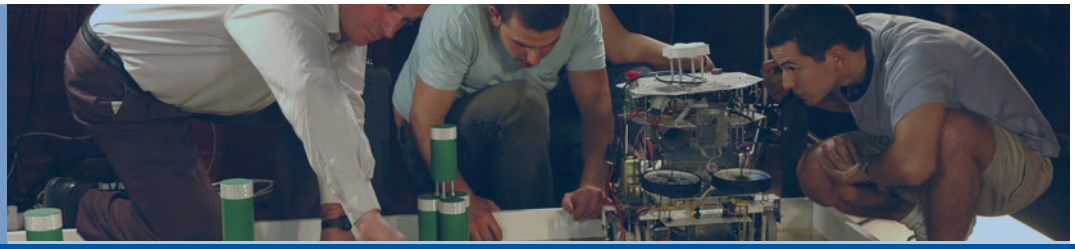
- Development of simulation tools for the prediction of radiated electromagnetic field in open areas.

OFFERED SERVICES

- Development of systems for auto guided vehicles, specially for precision agriculture applications

MARKETABLE RESULTS

Universidad de Alcalá



SMART SYSTEMS

Code
833

ISG

ISG
Intelligent Systems Group

RESEARCH AREA

Technological Sciences

COORDINATOR

Mª Dolores Rodríguez Moreno

KEYWORDS

Artificial Intelligence, Machine Learning

AIM

- Space Agencies
- Quality Assurance for any company
- Social Networks

CONTACT

malola.rmoreno@uah.es
Tlfn: 6607
Dpto. Automática
Edificio Politécnico Superior
Campus Universitario, Ctra. Madrid-Barcelona km, 33, 600, 28805,
Alcalá de Henares, Madrid

ABOUT US

The goal of the group is the research on Artificial Intelligence and its applications.

RESEARCH LINES

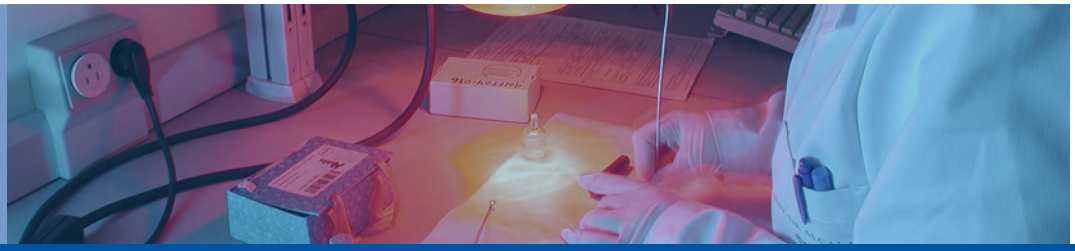
- AI Planning
- Machine Learning
- Robotics
- Genetic Programming

OFFERED SERVICES

- Expertise in Artificial Intelligence, Machine Learning, Deep Learning and Deep Reinforced Learning techniques
- A Telecare system for monitoring Dependent People in their home environments
- Autonomous robots platforms

MARKETABLE RESULTS

Universidad de Alcalá



SIGNAL AND COMMUNICATIONS ANALYSIS AND THEIR APPLICATIONS

Código
834

GASCA

RESEARCH AREA

Technological Sciences

COORDINATOR

Hilario Gómez Moreno

KEYWORDS

Signal Processing, Encrypted Communications, Optimization, Time Series, Applications

AIM

- Companies and institutions with specific needs in the group's work areas
- Other research groups with complementary interests

CONTACT

hilario.gomez@uah.es
Tlfn: 6703
Dpto. Teoría de la Señal y Comunicación
Edificio Politécnico Superior
Campus Universitario, Ctra. Madrid-Barcelona km, 33, 600, 28805
Alcalá de Henares, Madrid

GASCA

ABOUT US

The fundamental objective of the group is the application of different signal processing techniques in various areas within information and communication technologies always from the point of view of their application.

RESEARCH LINES

- Non-linear processing in communications
- Coded modulations based on chaos
- Design of digital filters for applications in communications and signal processing
- Optimization techniques for the design of communication systems
- Analysis of multimedia signals (audio, image and video) from the point of view of the direct application
- Signal and time series analysis for characterization and modelling

OFFERED SERVICES

- Analysis and design of real-time embedded systems, image processing applications and their analysis, design of communication systems and free hardware applications
- Consulting on emerging issues in signal processing, in general, and in communications

MARKETABLE RESULTS