

Empreses on pots fer el PFC

Empreses i Institucions que ofereixen projectes a l'ETSETB i que gestiona l'escola Última actualització: 20 d'octubre de 2011

Quan demaneu una plaça mitjançant l'Intranet, ho haureu de fer en referència al codi que surt a la taula.

ATENCIÓ: hi ha empreses que continuament estan ofertant projectes. Un dels requisits és que els has de sol·licitar pel teu compte, però pots demanar-nos qualsevol document que et sol·licitin i tingui a veure amb l'escola. Consulta aquí quines són.

TriaGnoSys GmbH

DLR

ViaLight

Continental

TriaGnoSys GmbH


TriaGnoSys GmbH. Wessling-Oberpfaffenhofen. Germany.

Codi	D TriaGnoSys Wess-1
Data d'entrada	14/10/11
Tipus d'estada	PFC
Descripció	<p>Development of a LTE system-level simulator for aircraft cabins</p> <p>Among the long-term objectives of TriaGnoSys GmbH, the provision of on-board 3GPP's Long Term Evolution (LTE) connectivity to passenger and crew members is envisaged. In the future, this will enable the on-board wireless access to local content as well as off-board connection possibilities.</p> <p>However, prior to the deployment of a wireless network within an aircraft cabin, a network planning study is required. Such work is usually divided into three sub-phases: propagation prediction, network simulation and network optimization. The offered project is centered on the second of these three sub-phases, thus focusing on the implementation of a reliable and useful LTE network simulation software tool.</p>
Inici	February/March/April 2012
Durada	6 months
Requisits	<ul style="list-style-type: none"> - C and/or C++ knowledge for the implementation of the LTE simulator core - Experience/Interest in developing APIs for web services with architectures such as SOAP, REST, etc - PHP, Javascript for the implementation of the control GUI
Nombre de places	1
Compensation	a compensation will be given
Codi	D TriaGnoSys Wess-2
Data d'entrada	14/10/11
Tipus d'estada	PFC
Descripció	<p>Auto-configuration of WLAN networks in Emergency Situations</p> <p>In case of a disaster event, the terrestrial commercial communication networks are likely to be overloaded, damaged or not operative, if they ever existed. In order to provide reliable communication means to the rescue forces a fast deployable network is foreseen. This network is formed by one or several portable communications units, which offer WLAN, GSM, UMTS and TETRA connectivity for the rescue personnel in the area. All the data and voice is then backhauled over satellite.</p> <p>The main task of this Diploma Thesis consists of finding a feasible solution for the automatic configuration of the WLAN network that enables the deployment of several communication units in the same coverage range ensuring interconnection between them and avoiding address conflicts.</p>
Inici	February/March/April 2012
Durada	6 months
Requisits	<ul style="list-style-type: none"> - Basic to advanced knowledge in computer networking (OSI, TCP/IP protocol stack, the different layers and their functions) is required - Basic to advanced knowledge in C and/or C++ and other programming languages is strongly recommended. - Knowledge of wireless mesh networks and LaTeX are welcome but not mandatory
Nombre de places	1
Compensation	a compensation will be given
Codi	D TriaGnoSys Wess-3
Data d'entrada	14/10/11
Tipus d'estada	PFC

	Wireless Sensor Networks on-board Aircraft
Descripció	<p>For operations and maintenance of future commercial aircraft, there is a significant potential for efficiency increase and cost reduction by using on-board Wireless Sensor Networks (WSNs) that could completely or partially replace current wired infrastructure. All prior work on WSNs in general is to be considered and assessed in the concrete scenario and the specific limitations encountered on board aircraft.</p> <p>In this diploma thesis an investigation of Medium Access Control (MAC) protocols for aeronautical WSN, in particular for implementations on a selected microprocessor, is to be performed.</p>
Inici	February/March/April 2012
Durada	6 months
Requisits	<ul style="list-style-type: none"> - Basic to advanced knowledge in computer networking (OSI, TCP/IP protocol stack, the different layers and their functions) is required - Basic to advanced knowledge in C and/or C++, discrete-event simulation, microprocessors is strongly recommended. - Prior studies or thematic knowledge about WSNs or ad-hoc networks is welcome but not mandatory
Nombre de places	1
Compensation	a compensation will be given

Codi	D TriaGnoSys Wess-4,5,6
Data d'entrada	28/10/11
Tipus d'estada	PFC

	Evaluation of an air-ground LTE network for Air Traffic Management (ATM)
Descripció	<p>Background</p> <p>The Long Term Evolution (LTE) is the latest mobile cellular communication standard developed by the 3rd Generation Partnership Project (3GPP). LTE uses OFDMA as a radio multiple access technology and it is considered by a large sector of the telecommunications industry as the standard on which future mobile voice/data connections will be based.</p> <p>During 2010, TriaGnoSys participated, together with other companies of the aeronautical sector, in a comparative study of wireless technologies capable of supporting the future air traffic management (ATM) services. This study, delivered to Eurocontrol's Single European Sky ATM Research (SESAR) initiative, highlighted the value of LTE for ATM communications via cellular air-ground (AG) links.</p> <p>Objectives</p> <ol style="list-style-type: none"> 1. To support a TGS internal study on the technical feasibility of LTE-based air-to-ground aeronautical communication system, justified by system-level simulations of LTE air-toground networks, taking into account various system parameters, including: <ul style="list-style-type: none"> - Frequency plans - Scheduling mechanisms - Interference from other aeronautical systems - Safety spectral bands 2. To study and implement safety ATM traffic models to feed the simulator 3. To design an LTE system-level simulator interface for the support of arbitrary traffic models <p>Methodology</p> <ol style="list-style-type: none"> 1. Studying the LTE fundamentals 2. Learning how to configure and operate an LTE system-level simulator 3. Design & configuration of the simulations so that inter-cell interference is taken into account 4. Definition of the Key Performance Indicators of an LTE air-ground network and to quantify these from the performed simulations 5. Implementation of the traffic models <p>Month 1: Study of LTE & system-level simulators Month 2-3: Implementation of traffic models. Initial simulation results. Mid-term presentation. Month 4-5: Specification & design of traffic models interface. Final simulation results. Month 6: Writing up. Final presentation.</p>
Inici	beginning from February/March 2012
Durada	6 months
Requisits	<ul style="list-style-type: none"> - OFDMA - Matlab, Octave or any other numerical analysis software - High english level - Basic knowledge of cellular networks
Nombre de places	3
Compensation	

inici de pàgina 

DLR

DLR-German Aerospace Centre, Institute of Communications and Navigation. Oberpfaffenhofen-Wessling. Germany

Codi	D DLR Wess-1
Data d'entrada	17/10/11

Tipus d'estada	PFC
Descripció	<p>Design techniques for low-floor turbo-like codes</p> <p>Work Descriptions: The candidate shall investigate techniques for the construction of low-error-floor iterativelydecodable codes. In particular, for low-density parity-check codes, girth conditioning techniques shall be selected from literature review, and implemented. For turbo codes, suitable interleaver designs shall be investigated and implemented.</p> <p>Tasks:</p> <ul style="list-style-type: none"> - Literature review for girth conditioning techniques and interleaver designs. - Implementation of the selected techniques. - Simulation of the performance of low-density parity-check and turbo codes constructed with the implemented techniques.
Inici	immediately
Durada	6-8 months
Requisits	The candidate shall be enrolled in a MS degree program, and shall have attended a basic course on channel coding. Knowledge of basic algebra is required.
Nombre de places	1
Compensation	

Codi	D DLR Wess-2
Data d'entrada	17/10/11
Tipus d'estada	PFC
Descripció	<p>Efficient Decoding Algorithm for Reed-Solomon Codes on Erasure Channels</p> <p>Work Descriptions: The candidate shall investigate efficient decoding algorithms for Reed-Solomon (RS) codes on erasure channels. In particular, the candidate shall understand in depth existing (well-known) algorithms as the Berlekamp-Massey (BM) and the Euclid algorithms for RS decoding. Recent enhanced algorithms shall be analyzed as well. For a set of investigated algorithms, a software implementation of the decoder shall be developed.</p> <p>Tasks:</p> <ul style="list-style-type: none"> - Literature review for efficient RS decoding algorithms - Implementation of the selected algorithms. - Simulation of the performance on typical erasure channels.
Inici	immediately
Durada	6-8 months
Requisits	The candidate shall be enrolled in a MS degree program, and shall have attended a basic course on channel coding and C programming. Knowledge of basic algebra is required.
Nombre de places	1
Compensation	

Codi	D DLR Wess-3
Data d'entrada	17/10/11
Tipus d'estada	PFC
Descripció	<p>Frequency dissemination through the atmosphere</p> <p>In near future more accurate optical clocks will be available to the scientific community, therefore more accurate time and frequency transfer methods have to be studied and respective systems developed. Using free space optical links is a very promising method for time and frequency transfer between satellites and ground stations. Optical free-space communication is strongly influenced by atmospheric turbulence, which induces signal fades but also distortions of the beam wave-front. Moreover, longitudinal phase fluctuations, the so-called piston, impact on the transmitted frequency stability. It is the goal of this thesis to evaluate the use of the optical carrier frequency to transmit accurate timing and frequency information, performing frequency stability measurements of free-space optical links through the atmosphere. The reference scenario is downlink with low elevation angles, where atmospheric turbulence has a higher impact. The work includes also theoretic investigations, Matlab simulations, laboratory work and measurements to study the effects of atmospheric turbulence on optical frequency stability. This work especially targets the improvement of knowledge and performace of optical links through the atmosphere for frequency dissemination.</p> <p>Tasks:</p> <ul style="list-style-type: none"> - Theory development. - Measurements of frequency stability - Development of a tecnique for the frequency dissemination
Inici	01.03.12
Durada	6-8 months
Requisits	<ul style="list-style-type: none"> - Desirable some background of communication systems - Experience with software development (C/C++, Matlab) - Desirable some experience with optical/electronic devices - Fluency in English

Nombre de places	1
Compensation	
Codi	D DLR Wess-4
Data d'entrada	25/10/11
Tipus d'estada	PFC
Descripció	<p>Sizing of Satellite System for Aeronatical Communications</p> <p>Work Descriptions: The candidate shall help in the consolidation of the sizing of a Satellite System for Aeronatical Communications in terms of required number of carriers for different traffic scenarios, taking into account system efficiency (spectral efficiency, encapsulation OH, signalling OH), QoS requirements, and corresponding system parameters (provided as inputs). This activity will be carried out through simulations, abstracting the behavior of the physical and data link layer.</p> <p>Tasks:</p> <ul style="list-style-type: none"> - To deduce the effective system link capacity for all the coverage positions on the basis of the link budget results and available results concerning the access techniques and the traffic patterns. - To extend a high level simulator capable to reproduce the effective peak system load in terms of number of users and exchanged traffic per beam. - To perform overall simulations considering the effective daily traffic on the whole coverage area, taking into account QoS requirements.
Inici	February - March 2012
Durada	6 months
Requisits	The candidate shall have attended a basic course on C programming. Knowledge of Matlab is also required. Knowledge of TDMA and Random Access schemes is highly recommended.
Nombre de places	1
Compensation	

[inici de pàgina](#) 

ViaLight

ViaLight Communication-Gilching. Germany

Codi	D VL Gil_1
Data d'entrada	17/10/11
Tipus d'estada	PFC
Descripció	<p>Electronics developer for flight laser-communication terminals</p> <p>ViaLight Communications offers laser communication solutions for data transmission between flight platforms, such as unmanned aerial vehicles (UAVs), aircraft and high altitude platforms (HAPs), and from flight platforms to the ground. Laser communication provides the solution for data-transmission bottlenecks from flight platforms and enables direct transmission of high-resolution image data to the ground or between platforms. VLC is a small and dynamic young company in a demanding high-tech communication field. We are looking for motivated young engineers and computer scientists to strengthen our team.</p> <p>Job description:</p> <ul style="list-style-type: none"> - Design of electronics hardware and firmware specific to the project requirements - Maintaining relations to suppliers of custom components or services - Development of micro-controller or DSP based embedded systems - Selection of suitable DSP processors and development tools
Inici	January
Durada	6-9 months
Requisits	<ul style="list-style-type: none"> - University degree in electrical engineering or similar disciplines - In depth knowledge in high speed data electronics design - Experience with analog/digital circuit design and product support - Familiarity with common test equipment - Familiarity with common HW development and design tools (Spice, PCB layout, VHDL...) - Excellent knowledge of English - Independent and goal-oriented work style - Team player
Nombre de places	1
Compensation	
Codi	D VL Gil_2
Data d'entrada	17/10/11
Tipus d'estada	PFC

Descripció	<p>Software developer for flight laser-communication terminals</p> <p>ViaLight Communications develops laser communication solutions for aerial platforms as UAVs, helicopters, aircrafts, or High-Altitude Platforms (HAPs). Laser communication provides the solution for data-transmission bottlenecks from flight platforms and enables direct transmission of high-resolution image data to the ground or between platforms. VLC is a small and dynamic young company in a demanding high-tech communication field. We are looking for motivated young engineers and computer scientists to strengthen our team.</p> <p>Job description:</p> <p>You will support our team in the development of the terminal control software for flight and ground laser communication systems. This includes diverse tasks like interfacing with various hardware components (motors, sensors), defining and developing test/simulation strategies, the enhancement of astronomical calculations, and planning/documenting software structures. Part of your work will be the development of intuitive GUIs.</p>
Inici	January
Durada	6-9 months
Requisits	<ul style="list-style-type: none"> - Academic degree in electrical/communication engineering or computer science with good study achievements - Strong experience with C++ required - Experience with Eclipse, QT, GUI development (ideally under Windows and Linux) - Knowledge of astronomical calculations (Star positions, telescope pointing models, GPS WGS84) - Basic knowledge of satellite orbit calculations (TLE, OEM) - Fluent English
Nombre de places	1
Compensation	

[inici de pàgina](#) 

Continental

Continental, A.D.C. GmbH, Lindau. Germany

Codi	D CONTINENTAL_Lin_1
Data d'entrada	19/10/11
Tipus d'estada	PFC
Descripció	<p>Improving the False Positive Rate of Classifiers for Sign Recognition</p> <p>The Continental plant in Lindau (Lake Constance) is developing innovative Driver Assistance Systems for more comfort and safety. This project is dealing with the improvement of the false positive rate, i.e. the rate of non-road signs falsely classified by as road signs, of a recognition system for speed limit signs.</p> <p>Your Tasks:</p> <ul style="list-style-type: none"> - Understanding the current implementation of the classifier for road sign recognition, - Search in the literature for methods to improve the false positive rate of classifiers, - Implement in C / Matlab the most promising alternatives, - Evaluate and statistically compare these alternatives using real road sign data, - Write a report to summarize results and conclusions.
Inici	Spring 2012
Durada	for at least 6 months
Requisits	<ul style="list-style-type: none"> - Sound knowledge of Statistical Mathematics and Image Processing - Good communication skills in German and/or English - Good programming skills in C/C++ and Matlab, - Working knowledge of Office Tools (Excel, Word, etc...). - Driving license
Nombre de places	1
Compensation	

Codi	D CONTINENTAL_Lin_2
Data d'entrada	19/10/11
Tipus d'estada	PFC
Descripció	<p>Image Processing and DataEvaluation of Sender Lens Test Station</p> <p>The Continental plant in Lindau (Lake Constance) is developing innovative Driver Assistance Systems for more comfort and safety. This project is dealing with an IR laser range sensor (LIDAR) which captures the environment of a vehicle in order to warn the driver or to initiate an emergency braking maneuver. In this context we are looking for a master thesis student for image processing, data evaluation and control of a camera based test station for the sender lens.</p> <p>Your Tasks:</p> <ul style="list-style-type: none"> - Process the images of a segmented lens: - Detect edges between lens segments - Superpose all images for one segment - Find edges in image to calculate beam width and height for each lens segment - Design and implementation of user interface

Inici	as soon as possible
Durada	for at least 6 months
Requisits	<ul style="list-style-type: none"> - image processing - experience with Matlab/Simulink are advantageous - good language ability (English or German) - fast comprehension, analytic skills, creativity and team spirit
Nombre de places	1
Compensation	
Codi	D CONTINENTAL_Lin_3
Data d'entrada	19/10/11
Tipus d'estada	PFC
Descripció	<p>Design of Simulation Model for IR-Laser Sensor and Light Path</p> <p>The Continental plant in Lindau (Lake Constance) is developing innovative Driver Assistance Systems for more comfort and safety. This project is dealing with an IR laser range sensor (LIDAR) which captures the environment of a vehicle in order to warn the driver or to initiate an emergency braking maneuver. In this context we are looking for a master thesis student to design the theoretical model of a laser sensor and light path.</p> <p>Your Tasks:</p> <ul style="list-style-type: none"> - Decompose sensor and light path in modules (e.g. emitter, lenses, target, receiver, amplifier) - Design and implementation of a Matlab/Simulink model for each module. - Design and implementation of interface to existing Matlab/Simulink data processing - Verification of simulation results
Inici	as soon as possible
Durada	for at least 6 months
Requisits	<ul style="list-style-type: none"> - design of simulation models - experience with Matlab/Simulink are advantageous - good language ability (English or German) - fast comprehension, analytic skills, creativity and team spirit
Nombre de places	1
Compensation	
Codi	D CONTINENTAL_Lin_4
Data d'entrada	19/10/11
Tipus d'estada	PFC
Descripció	<p>Definition and Installation of Experimental Setup for IR-Laser Sensor</p> <p>The Continental plant in Lindau (Lake Constance) is developing innovative Driver Assistance Systems for more comfort and safety. This project is dealing with an IR laser range sensor (LIDAR) which captures the environment of a vehicle in order to warn the driver or to initiate an emergency braking maneuver. In this context we are looking for a master thesis student to define and setup a reference setup of the IR laser range sensor.</p> <p>Your Tasks:</p> <ul style="list-style-type: none"> - Analyze existing LIDAR sensor - Decompose Sensor in modules (e.g. emitter, receiver, amplifier) - Setup of all modules on a test bench with accessible interfaces - Design and implementation of interface to Matlab/Simulink for sensor control and data acquisition - Compare results of experimental setup with sensor
Inici	as soon as possible
Durada	for at least 6 months
Requisits	<ul style="list-style-type: none"> - digital signal processing - experience with Matlab are advantageous - basic knowledge in electronics - good language ability (English or German) - fast comprehension, analytic skills, creativity and team spirit
Nombre de places	1
Compensation	
Codi	D CONTINENTAL_Lin_5
Data d'entrada	19/10/11
Tipus d'estada	PFC
Descripció	<p>Development of a new mapping Algorithm for Occupancy Grids based on a Stereo Camera System</p> <p>The Continental plant in Lindau (Lake Constance) is developing innovative Driver Assistance Systems for more comfort and safety. The student will work on improvements of Occupancy Grid Mapping Algorithm.</p>

	<p>Your Tasks:</p> <ul style="list-style-type: none"> - Understanding a Stereo Camera System and the available Stereo Camera based mapping algorithm of the Occupancy Grid, - Design, implementation and evaluation of alternatives to the current mapping algorithm by observing the ability of real-time, - Evaluate the mapping performance by using real world Scenarios - Write a report to summarize the results and conclusions
Inici	Spring 2012
Durada	for at least 6 months
Requisits	<ul style="list-style-type: none"> - Sound knowledge of Statistical Mathematics and Image Processing - Good communication skills in German and/or English - Good programming skills in C/C++ - Working knowledge of Office Tools (Excel, Word, etc...). - Driving license
Nombre de places	1
Compensation	
Codi	D CONTINENTAL_Lin_6
Data d'entrada	19/10/11
Tipus d'estada	PFC
Descripció	<p>Prove of Occupancy Grid Accuracy by using a Laser Sensor</p> <p>The Continental plant in Lindau (Lake Constance) is developing innovative Driver Assistance Systems for more comfort and safety. The student will work on a test Algorithm to measure the accuracy of our Grid Algorithms.</p> <p>Your Tasks:</p> <ul style="list-style-type: none"> - Understanding the available algorithm for Occupancy Grids, the DGPS based prove Algorithm, Laser Sensors - Design, implementation and evaluation of a matching Algorithm between Grid Data and Laser Sensor Data, - Evaluate the Grid accuracy by Laser reference data on different real Wold Scenarios with a test car - Write a report to summarize the results and conclusions
Inici	Spring 2012
Durada	for at least 6 months
Requisits	<ul style="list-style-type: none"> - Sound knowledge of Statistical Mathematics and Image Processing - Good communication skills in German and/or English - Good programming skills in C/C++ - Working knowledge of Office Tools (Excel, Word, etc...). - Driving license
Nombre de places	1
Compensation	