JUAN CASADO BALLESTEROS

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Education

Computer Science
Alcalá de Henares University

Coursework: Data Structures, Data Science, Operative Systems, Data Bases, Memory Shared Concurrent programming, Cloud Computing, GPU Programming, Robotics, Image processing, Functional Programming, Software Engineering, Distributed Programming, Network Management, Artificial Intelligence, Compilers, Ubiquitous Computing, Object Oriented Programming, Logical Programming, Statistics, Linear Algebra, Calculus, Logic, Algorithmic.

GPA: 7.86/10

British Council

English studies at the British Council for four years, currently at the TOEFL 110-114 Cambridge CAE C1.2 English level.

Publications

- Juan Casado, José Luis González, Abdelhamid Tayebi, Josefa Gómez, Francisco Sáez de Adana (2019) **Application of bioinspired algorithms for the optimization of a radio-propagation system simulator based on OpenStreetMap**. ACCSE 2019: The fourth International Conference on Advances in Computation Communications and Services. July 28, 2019/August 02, 2019 at Nice, France.
  ISBN: 978-1-61208-735-1 pages 8-11.
- Josefa Gómez, Luis Fernández, Ana Castillo, Juan Casado, Abdelhamid Tayebi (2019) **Development of Competence Maps for Training Programs Based on the European Frameworks e-CF and ESCO**. ACCSE 2019: The fourth International Conference on Advances in Computation Communications and Services. July 28, 2019/August 02, 2019 at Nice, France.
  ISBN: 978-1-61208-735-1 pages 12-15.

Investigation

Optimization of antenna placement using genetic algorithms at the Alcalá de Henares University

We have developed a set of genetic algorithms to determine the best placement of antennas to reduce signal loss over a given area.

The signal loss is calculated with heuristic algorithms using NASA's SRTM height data

Users will access the application to get user input and displays the calculated antenna loss over a map over the web.

The back end is completely virtualized over containers and developed to scale with high amounts of concurrent users.

DevOps with docker to allow the hole system to run cross platform and be deployed on the cloud.

Employment

Complubot, robotics academy

Pollotron

- C++ Linux/ROS-based robot that that performs SLAM to navigate through the environment.
- Image recognition with Intel Real Sense and OpenCV and voice recognition with Google cloud text-to-speech.
- Multi-platform desktop C++ app to monitor and control the robot's omnidirectional velocity-encoded motor platform.

MegaTrueTrue

- C++ modular robot Arduino-based that imitates the behavior of TrueTrue robot while being eight times bigger.
- Multi-platform mobile and desktop C++ app to remotely control the robot over TCP.
- This robot debuted at the SIMO robotics fair in November 2018 at Madrid.

ColdPlay-Robot

- C++ Arduino-based robot that uses a Pixy camera to perform object recognition over real time video.
- The robot detects objects by color and takes them with a grab to carry them to the color matching compartment.

Alien Soccer

- C++ Arduino-based distributed pair of robots communicated via Bluetooth to play robot soccer.
- Each robot had a modular architecture with dedicated software and hardware to control each sensor including a compass and a 360 infrared vision system and each encoded motor.
- This robot was the third out of eight in at Imperdibles2.0, a European robot soccer competition.

Technical experience

- Multi-threaded memory shared remote monitoring software in JAVA.
- JAVA program that translates JSON to .dot and .svg files using antlr4 and graphviz.
- Artificial vision and image recognition algorithms.
- Data science analysis.
- Set of common algorithms implemented in Swift (greedy/simple recursion/backtracking/dynamic).
- Imitation of the 2048 game using CUDA with the aim of an efficient execution over a GPU.
- Imitation of the 2048 game using SCALA with the aim of learning functional programming paradigm.
- Creation and maintenance of a relational SQL data base as a university project.
- Color Queue: iOS and Android app, on-line game in C++.
- Game of life: iOS and Android app, Conway's Game of Life simulation.
- Shutter Earth: 2d platform shooter in JAVA over slik2d game engine.
- Linux shell that used POSIX calls to the OS and implemented a custom pipe and redirection system.

Programming Languages and Technologies

- C++, C, JAVA, Python, JavaScript, CUDA, Swift, R, Scala, Lisp, Prolog, SQL, HTML5, CSS3, XML, JSON, Markdown, LaTeX.
- ROS, MATLAB, cocos2d-x, pygame, slick2d, Swing, antlr4, OpenCV, TensorFlow, graphviz.
- PostgreSQL, MySQL, MongoDB, Docker, Kubernetes, Git, WireShark, Linux, JIRA, Project.
- NetBeans, XCode, CLion, PyCharm, Sublime Text, Visual Code, Android Studio, KiCad.