Diogo Peralta Cordeiro

www.diogo.site · mail@diogo.site

Education

University of Porto

PhD in Computer Eng.
current
BSc in Computer Science
2022

Coursework

real-time embedded systems
intelligent mobile robotics
dependable computing
machine vision
advanced algorithms
automatic control
computing theory
computer networking
concurrency
operations research
digital signal processing
interaction design
privacy enhancement

Skills

Technologies

PHP, Java, Haskell, Prolog
Erlang, SQL, Redis
UNIX, Shell Script, Git
MATLAB, LaTeX

Languages

Portuguese (native)
English (C1 - CAE)

Selected Experience

Systems Analyst
Apontamento Cordial
2022-03-10 to present

I offer Strategic Consulting services by analysing current systems and processes to identify improvement opportunities. I create Tailored Training programs for clients, and all my work emphasises Client-Centric Collaboration, ensuring our services align seamlessly with their objectives.

Lead Developer
GNU social - The free software social networking platform
2018-04-23 to 2022-09-01

Received funding through the European Union's Horizon 2020 research and innovation programme under the NGI0 Discovery Fund grant agreement No 825322, during the period 2021-02 to 2022-02, to lead the development of version 3, which features a high degree of accessibility, customisation and expansion via plugins. This fund is a European Commission initiative that aims to shape the development and evolution of the Internet into an Internet of Humans. Before, I contributed to the development of version 2 and mentored twelve students, three supported by Google Summer of Code (GSoC).

Research Internship in Multimedia Communications Technologies (MCT)
Telecommunications and Multimedia Centre (CTM), INESC TEC
2022-06-21 to 2022-07-28

Comparison of parametric models of humans to perform their representation in 3D. This required understanding the models, implementing the necessary infrastructure for their test, and final analysis and comparison. Such was distinguished as the best work of the Multimedia Communications Technologies category by the Jury of the internship programme.

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Bio

My name is Diogo Cordeiro. I am a Computer Programmer from Porto, Portugal. My passion for Computer Science began in 2010, not long after I got access to a computer. I started by learning logic for programming and then C. I'd write simple scripts to make some tasks less tedious. I spent the next few years learning about UNIX, Multimedia and Programming.

In secondary education, I studied Sciences and Technologies (with English, Biology and Geology, Physics and Chemistry, Physics, and Computing as my elective subjects).

In 2017, I was sure that Computer Science was the subject I wanted to study at the University of Porto. I've since been learning new skills and attaining interdisciplinary experience. Nowadays, I'm a DPhil student in Electrical and Computer Engineering.

Besides listening to music, contemplating art, and watching some old TV shows, in my free time, I enjoy playing tennis, doing jazz and contemporary dance, reading books, playing board games and hanging out with friends.

Personal Skills

Team working: I work in globally distributed teams as part of free/open source software projects. I was a volunteer at ACM-ICPC 2019. I'm also directly involved in the organization of Hackers at Porto (the founder of this student society).

Mentoring Experience: I have been a mentor for The GNU Project/social (as part of the Google Summer of Code programme) from 2019 to 2021. Furthermore, I have also mentored students in events and workshops organized as part of different schools and groups, namely Hackers at Porto and the University of Porto's Computer Science student society.

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Experience

Systems Analyst

Apontamento Cordial

2022-03-10 to present

Strategic Consulting: I provide insights by conducting in-depth analyses of existing systems and processes, identifying improvement opportunities, and recommending strategic solutions to boost productivity.

Tailored Training: I design and deliver customised training programmes, meeting the specific needs of client companies. These programmes empower teams with the knowledge and skills to effectively utilise technology, fostering a culture of continuous learning.

Client-Centric Collaboration: I closely collaborate with clients, gaining a profound understanding of their unique needs and objectives. This ensures that our training and consulting services align seamlessly with their strategic goals.

Dependable Computing in the Aerospace Sector

University of Porto

2022-09-14 to present

In September 2022, I joined the **ANTAEUS** project as a member of the On-board Data-Handling (OBDH) team. Our mission is to design and launch a 2U CubeSat to perform scientific measurements in the 100keV - 10MeV energy band and to validate a 2U instrument for future space high-energy astrophysics observatories. The project is led by the University of Coimbra in partnership with the Laboratory of Instrumentation and Experimental Particles Physics (LIP) and the University of Beira Interior. The main scientific and technological conclusions achieved with ANTAEUS will contribute to developing enhanced instrumentation that should fly in M-class high-astrophysics mission proposals where the UC is participating, as well as in high-energy astrophysics based on a CubeSat constellation.

In October 2023 I became a supervisor of the **Porto Space Team** student society. In July 2022, I had joined **Porto Space Team** as the head of the Department of Software and Computer Engineering, responsible for the Data-Handling in project **INVICTUS**. The project's goal is to develop a hybrid-propellant (H3 category) rocket for the European Rocketry Challenge (EuRoC 2023), with an apogee of 3000 meters and a safe landing on the ground via a parachute recovery system.

Co-founder and CTO

Kult - The social network to discover, save, and discuss content with friends, incubated at UPTEC

2020-06-04 to 2022-09-08

Received support from Grant For The Web Flagship grant from 2021-06-01 to 2021-12-01, and from IAPMEI's StartUP Voucher full grant from 2020-06-01 to 2021-06-01. In Kult, I've been involved in the whole product conception, conducted numerous tech interviews and designed the base backend architecture.

Lead Software Engineer

GNU social

2019-01-01 to 2022-09-01

GNU social is a social communication software written in PHP for public and private communications. It is widely supported and has a large user base including the Free Software Foundation. It connects you to a free network of thousands of communities that discuss daily on a variety of topics, each being part of the whole. Project website: https://gnusocial.rocks

In 2021-02 I received funding through the European Union's Horizon 2020 research and innovation programme under the NGI0 Discovery Fund grant agreement No 825322, during the period 2021-02 to 2022-02, to lead the development of version 3, which features a high degree of accessibility, customisation and expansion via plugins. This fund is a European Commission initiative that aims to shape the development and evolution of the Internet into an Internet of Humans.

In 2021-01 I designed the new architecture for version 3, guided the development of this new major release, introduced a new data representation, and a new attachment mechanism, and ported much of v2 to v3.

Another highlight from 2021 was the development of FEP-2100 (https://codeberg.org/fediverse/fep/src/branch/main/feps/fep{-}2100.md) which allows ActivityPub Actors of type "Group" or "Organization" to follow other such actors.

Research Internship in Multimedia Communications Technologies (MCT)

Telecommunications and Multimedia Centre (CTM), INESC TEC - Institute for Systems and Computer Engineering, Technology and Science

2022-06-21 to 2022-07-28

With the advent of machine learning methods, there has been extensive research in areas such as human detection, tracking and activity recognition. Inherent to this is the analysis of the human pose with methods relying on human skeleton models that establish a connection between the information extracted from the scene and the human body. This information can also be used by human parametric models to create virtual 3D representations of the human body. In this context, the idea of this internship is to look more precisely at the current

existing human parametric models for human reconstruction and compare them. This work was distinguished as the best of the MCT category by the Jury of the internship programme.

Mentor / Director of Studies

GNU social

2019 to 2021

Organised Google Summer of Code (GSoC) in 2019 and 2020 at GNU social. Mentored a total of four students.

Organised GNU social Summer of Code, a program similar to GSoC (but funded by the community instead), and mentored a student in 2020.

In the Autumn term of 2020, GNU social was one of the projects in FEUP's Software Development Laboratory master module of the Integrated MEng in Computer Information Systems Engineering (MIEIC-LDSO). I've thus helped with the mentoring of eight year 4 informatics engineering students during the Autumn term of 2020.

Google Summer of Code is a global program focused on bringing more student developers into open-source software development. Students work on a three-month programming project with an open-source organisation during their break from university.

Selected contributions with mentored students:

- (2020-03-31 to 2020-09-08) As a GSoC mentor of two students:
  - *Full Core Rewrite*: Modernise the whole codebase by replacing unmaintained libraries and re-design the framework to use Symfony as the new foundation instead of Pear.
  - *New Frontend*: A new modern frontend for GNU social that improves UI, and UX and reviews every controller to ensure optimised queries and caching.
- (2019-04-27 to 2019-08-26) As a GSoC mentor of two students:
  - *Network Services Improvements*: Improvements on OpenID support, URLMapper, fluid transition between different federation protocols and further ActivityPub development, namely, queues, collection caching, audience targeting, inbox forwarding and groups.
  - *Optimisations on Load Balance System and Storage Usage*: Improved Media Handling system, refactoring and improvement of Embed plugin (previously named OEmbed plugin), Redis support, improvements on Memcached support.

Robotics Engineer internship

Underwater Systems and Technology Laboratory (LSTS) - Developing and deploying robotics systems for ocean operations

2020-08-03 to 2020-10-31

Received a Portuguese Foundation for Science and Technology BII research grant during this internship. Our interdisciplinary student team further developed a low-cost ASV, designed a docking station and started work on a manoeuvre to enable autonomous docking in the LSTS' ToolChain. This manoeuvre uses a Vector Field Guidance algorithm to find the optimal trajectory. When closer to the station, tracks a target with the camera module. The vessel uses an IMU, a GPS, a camera and a Raspberry PI 4.

Student developer at GNU social

Google Summer of Code

2018-04-23 to 2018-08-06

I've implemented ActivityPub, a state-of-the-art protocol in federated social networks, via a plug-in into GNU social. Tech Report: https://go.diogo.site/gsoc2018

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Education

Specialised Training

CubeSat Concurrent Engineering Workshop 2023

ESA Academy, ESA ESEC

2023-02-14 to 2023-02-16

Training session during which university students are introduced to the concurrent design of a CubeSat mission. Guided by ESA experts, the students learn to use COMET (Concurrent Model-based Engineering Tool) and identify design drivers. Divided into teams, they first create a subsystem concept to later achieve an already identified mission concept, function tree and product tree, using concurrent engineering. The workshop helps to better prepare the university students that are planning to embark on a CubeSat project or are at the early stages of one.

Some Key Topics:

- Introduction to Concurrent Engineering, System Engineering and requirements by Robin Biesbroek
- CubeSat Missions and Technologies by Camille Pirat
- CubeSat Architectures by Ilja Skrypnyk
- Increasing RAMS for CubeSat by Silvana Radu

Fly Your Satellite! Design Booster - Training Week

ESA Academy, ESA ESTEC

2022-11-07 to 2022-11-11

ANTAEUS is prospective FYS! Portuguese team that attended the Fly Your Satellite! Design Booster Training Week to learn more about spacecraft design and project management.

Covered Topics:

- Project Management Principles and COTS by Alexander Kinnaird
- Legal Aspects of CubeSat Missions by Dorota Englender
- Communications and Outreach by Cristina del Castillo Sancho and Laylan Saadaldin
- System Engineering Principles by Alexander Kinnaird
- AIV (Assembly, Integration and Verification) and Testing by Benjamin Vanoutryve
- Introduction to MBSE (Model Based Systems Engineering) by Jamie Whitehouse

- Workshop: Systems Engineering by Gilberto Grassi
- Data-Handling Subsystem Design and Verification by Tomasz Szewczyk
- Flight Software development by Volkan Salma
- EPS (Electrical Power System) Design and Verification by Pablo Hernandez
- Structural Design and Verification by S. Das
- Thermal Design and Verification by Philipp Hager
- Mechanisms Design and Verification by Ewelina Ryszawa
- Project Management for CubeSat by Franco Perez Lissi
- AOCS Design and Verification by Andrew Hyslop
- Spacecraft Operations by David Evans
- TT&C and Ground Segment by Alberto Busso
- Reliability, Availability, Maintainability, and Safety (RAMS) of CubeSats (FMEA, HSIA, FDIR) by Silvana Radu
- Space Debris Mitigation and Trackability by Stijn Lemmens
- CubeSat Mission Analysis by Gilberto Grassi

Startups School

UPTEC - Science and Technology Park, University of Porto's Business Incubator

2020-11-16 - 2021-06-01

The School of Startups is designed to prepare entrepreneurs for the challenges of creating and developing a new business project. During three months, the participants have the opportunity to interact with new tools and concepts and work with structures and people that can help them validate the idea in the market.

Covered Topics:

- Business Model
- Patents - How to protect intellectual property
- Differentiation and Strategy
- Knowledge Management in Traditional Making and creative industries
- Pricing, Marketing and Selling
- Problem Mapping

- New measures and services during COVID-19
- Social benefits attributed by the company
- Corporate & Startups - How to make it work by Doing Business
- Horizon Europe
- Public Communication - the Body as an Instrument
- Structuring a Pitch
- Fundraising from Venture Capitals
- Making business with the USA
- Dealing with Taxes
- Term Sheets
- Digital Marketing

Post-graduation mini-course on Introduction to Bayesian Statistics: Fundamentals, Methods and Applications

CMUP · IST-UL

2020-02-17 to 2020-02-18

Taught by professors Carlos Daniel Paulino and Giovani Loiola da Silva.

University of Porto's Mathematics Centre (CMUP) and the University of Lisbon's School of Engineering (IST-UL) promoted jointly this course that covered the following topics:

- Bayes' theorem and essence of the Bayesian methodology. Basic illustrations of inferential procedures.
- Representation of a priori information. Non-informative distributions (Bayes-Laplace and Jeffreys). Natural conjugated distributions. Characteristics of the Bayesian paradigm.
- Applications to problems with analytically exact or asymptotic solutions: Analysis of linear Gaussian models and models for categorised data.
- Inference by stochastic simulation. Traditional Monte Carlo methods. Software illustrations.
- Model evaluation: Criticism and adequacy; selection and comparison.
- Inference by Monte Carlo methods based on Markov Chains (MCMC): Basic ideas and simulation algorithms.

- Illustrated implementation of Bayesian inference via MCMC in OpenBUGS or JAGS software.
- Applications to practical problems in various scientific fields.

Academic

PhD in Electrical and Computer Engineering

Faculty of Engineering, University of Porto

2022-09-14 to present

Supervisor: Prof. João Tasso Sousa

Activities and Societies:

- Supervisor of Porto Space Team

  (2023-10-03 to present)
- Member of the ANTAEUS CubeSat project

  (2022-09-21 to present)
- Member of Porto Space Team

  (2022-07-12 to 2023-10-03)

Specialisation: Automation Engineering **; Field of study:** Information Engineering, Computer Science, Intelligent Systems, Robotics, Systems and Control.

Coursework:

- Real-time Embedded Systems
- Intelligent Mobile Robotics
- Network Science
- Computer Vision

BSc in Computer Science

Faculty of Sciences, University of Porto

2017-09-18 to 2022-09-06

180 ECTS of which 54 ECTS were in Mathematics.

Activities and Societies:

- Member of EUGLOH's Joint Curricula Design WP and Student Board

  (2020-07-13 to 2021-07-30)

- Member of Faculty of Sciences' Pedagogical Council

  (2019-11-05 to 2022-06-17)

- Freshers Teacher Assistant for the Computer Science Department

  (2019-09-10 to 2021-07-30)

- A founding member of Hackers at Porto Student Society

  (since 2017-11-01)

Some key contents include:

- Mathematics (numerical analysis, stochastic processes, operations research, linear algebra, analytic geometry, multivariable calculus, differential equations)
- Computing Theory (graphs, logic and proof, computability, complexity, reactive systems)
- Computer Systems (computer architecture, computer networking, operating systems)
- Programming (compiler construction, advanced algorithms and data structures, multiprocessor programming)
- Applications and Professionalism (intelligent systems, interaction design, security, privacy, databases)
- Electrical Engineering (automatic control, digital signal processing)

Exchange Studies on Societal Resilience (7.5 ECTS)

Lunds tekniska högskola (LTH), University of Lund (ERASMUS+/EUGLOH)

2020-09-01 to 2020-10-29

Aim:

- to provide the students with an understanding of society's challenges and necessary functions for resilience in relation to various events threatening safety and sustainability, as well as the ability and approaches to contribute to societal resilience through disaster risk management and climate change adaptation for sustainable development in a changing world.
- to form a foundation for students interested in research in disaster risk management and climate change adaptation for a safe and sustainable society

The course is designed with a particular focus on critical thinking in relation to societal safety and sustainability. It is structured in modules with lectures and seminars or role-play designed

to illuminate central concepts, questions, challenges and functions for societal resilience. The seminars and role-play follow case studies from countries with different conditions and are based on literature, movies and case study material, as well as specific questions for reflection and dialogue.

Licenses, Certifications and Micro-credentials

Six Sigma Yellow and Green Belt Specialization

University System of Georgia via Coursera

2023-12-27

The objectives of the course were:

- Six Sigma Principles
- Six Sigma Tools for Define and Measure
- Six Sigma Tools for Analyze
- Six Sigma Tools for Improve and Control
- Six Sigma and the Organization (Advanced)
- Six Sigma Advanced Define and Measure Phases
- Six Sigma Advanced Analyze Phase
- Six Sigma Advanced Improve and Control Phases

Specialization in Project Management

Google via Coursera

2023-12-24

The objectives of the course were:

- Foundations of Project Management
- Project Initiation: Starting a Successful Project
- Project Planning: Putting It All Together
- Project Execution: Running the Project
- Agile Project Management

Introduction to Classified Information Security

GNS - Gabinete Nacional de Segurança de Portugal via Plataforma NAU

2023-12-17

The Future of Industry

Porto Business School via Plataforma NAU

2023-12-17

Specialization in Strategic Leadership and Management

University of Illinois at Urbana-Champaign via Coursera

2023-12-14

The objectives of the course were:

- Leading Teams: Developing as a Leader
- Leading Teams: Building Effective Team Cultures
- Designing the Organization
- Managing the Organization
- Business Strategy
- Corporate Strategy

Specialization in Strategic Leadership: Impact, Change, and Decision-Making

Dartmouth College via Coursera

2023-11-28

The objectives of the course were:

- Why Smart Executives Fail: Common Mistakes & Warning Signs
- Decision-Making: Blending Art & Science
- Superbosses: Managing Talent & Leadership
- Lessons on Wisdom: Personal Leadership for Your Life

Auditores e Facilitadores em Acessibilidade Web - Selos Bronze e Prata

ama - Agência para a Modernização Administrativa via Plataforma NAU

2023-11-19

Technological Entrepreneurship

Porto Business School via Plataforma NAU

2023-11-19

Academia de Empreendedorismo (1 ECTS)

NOVA University of Lisbon via Plataforma NAU

2023-11-19

eDESK Digital and Entrepreneurial Teachers for a Fast-Changing World

NOVA University of Lisbon, University of Cantabria, University of Zagreb, and Lappeenranta University of Technology via Plataforma NAU

2023-11-14

Freedom of Expression and Safety of Journalists

Bonavero Institute of Human Rights, Faculty of Law, University of Oxford and UNESCO

2023-10-27

Summer 2023 CIRTL Network MOOC, An Introduction to Evidence-Based Undergraduate STEM Teaching

Center for the Integration of Research Teaching and Learning (CIRTL)

2023-08-21

The objectives of the course were:

- Key learning principles such as the role of mental models in learning and the importance of practice and feedback;
- Fundamental elements of course design, including the development of learning objectives and assessments of learning aligned with those objectives;

- Teaching strategies for fostering active learning and inclusive classroom environments.

Communicating with Presence

Stanford University School of Medicine

2023-07-06

Mechanical Ventilation for COVID-19

Harvard Medical School

2023-05-25

ECSS E-40 Software Engineering

ESA Training on ECSS

2023-03-09

The objectives of the course were:

- manage your software project for space and ground applications;
- understand the significance and procedures of the process;
- know what ESA expect from you;
- identify potential sources of project failures as early as possible; and
- bridge the System and Software domains.

GDPR for Mindful Citizens

Instituto Nacional de Administração via Plataforma NAU

2023-03-09

SOE'22 Workshop - Space, Ocean and Earth Insights

UT Austin Portugal Program

2022-07-07

This 5h training was a joint collaboration between the UT Austin Portugal Program, INESC TEC, through its Center for Robotics and Autonomous Systems (CRAS), the International Institute for Astronautical Sciences - Space for All Nations (IIAS), the Porto School of Engineering (ISEP),

the Faculty of Sciences of the University of Porto (FCUP), the Portuguese Space Agency, PT Space and Luso-American Development Foundation (FLAD).

Transferable skills for engineering: pedagogical training (1.5 ECTS)

Faculty of Engineering, University of Porto

2022-10-08 to 2022-12-05

The objectives of the course were:

- Pedagogical preparation of a course;
- Learning objectives and skills;
- Teaching strategies for large classes;
- Introduction to learning assessment;
- Higher Education pedagogy.

Transferable Skills: Music and Society (3 ECTS)

Casa da Música and Faculty of Engineering, University of Porto

2022-02-09 to 2022-06-03

Aim:

- Understand and identify the fundamentals of musical creation for the historical and critical understanding of the various musical expressions;
- Identify the cultural and performative agents and practices, as well as the performative conventions of the various artistic expressions;
- Experience the social context and impact of music as an identity creation;
- Develop critical and informed listening skills of various historical moments, and artistic expressions;
- Develop a critical spirit at the level of musical curation according to various contexts of social intervention.

Critical listening: musical traditions throughout the history of music and their representation and manifestation in contemporary musical practice;

Musical Practice and its Social Contexts: to understand from the curatorship practices of the classical concert program to the principles of social intervention of music in the community;

The Mechanics of Musical Creation: knowing the agents involved in musical practices, taking into account the aspects of creation (composition, interpretation, production) and dissemination;

Critical involvement with music: Music as a personal and interpersonal development of transversal and transferable skills and in the creation of identities (personal and collective).

Exchange Studies on Entrepreneurial Skills (1.5 ECTS)

Lund University School of Economics and Management (LUSEM) (ERASMUS+/EUGLOH)

2021-10-15 to 2021-12-15

Aim:

- introduces students to the development process of an entrepreneurial project;
- introduces students to the entrepreneurial mindset that is needed for the development process to take place;
- introduces students to the dynamics of teamwork.

Today we all acknowledge that global society faces a number of challenges that need new and creative solutions. Adding to that, we need to learn how to handle uncertainties and unpredictable situations in a productive and progressive way. In order to cope with these challenges and uncertainties there is a call for more entrepreneurial knowledge and skills.

At the end of the course, there was a two-day hackathon where the students worked in teams with the task to deliver a solution to a challenge in the area of Global Health. There were six teams in the contest. We were ranked as the best team.

Cambridge English Level 2 Certificate in ESOL International (C1 in CEFR)

Cambridge Assessment English

2021-10-16

Credential ID: *B6703928*

- Reading: 200 (A C2)
- Use of English: 201 (A C2)
- Writing: 190 (C C1)
- Listening: 193 (B C1)
- Speaking: 195 (B C1)

Quadcopter Simulation and Control (droneX)

Instituto Superior Técnico, University of Lisbon

2021-04-27

Modelling of how quad-rotor drones operate, the most usual configurations, and the reference frames used to model the quad-rotor motion:

- Block diagrams;
- Quad-rotor dynamics.

Analyse each of the sub-systems needed with Scilab/Xcos software:

- Actuation of the four pairs of motors and propellers (rotors) which generate the propulsive forces and moments;
- The dynamic and cinematic equations which establish the relation between the forces and moments and the quad-rotor motion.

Control of the quad-rotor motion:

- The most used control solutions, in general, or for the particular case of drones;
- The stabilisation of the vertical and angular motion of the quad-rotor, and the horizontal guidance;
- Approximations to reach a more realistic simulator.

Company Strategy and Project

IAPMEI - Financial Training for Entrepreneurs

2020-12-02

U21 Global Citizenship

Common Purpose

2020-10-29

An experiential asynchronous course where participants advance the UN Sustainable Development Goals gaining a Pass grade for each of the five Open Source Leadership skills assessments

and post-programme reflective assessment on: "How am I going to step up as a Global Citizen and advance my Sustainable Development Goal?"

Chinese Language and Culture

Confucius Institute, University of Porto

2020-04 to 2020-05

- China and Chinese Language
- Chinese Cuisine
- Chinese Geography and Tourist Attractions
- Chinese Lifestyle

EBEC Porto 24h - Team Design (1.5ECTS)

Faculty of Engineering, University of Porto

2019-03-16 to 2019-03-18

A 24 hours contest of engineering and related techniques applied to automation, instrumentation and control. With my team, we've had to develop a Rube Goldberg machine with the purpose of hoisting a flag. We've scored 18 out of 20, therefore being one of the ten teams who've got to the podium. There was a total of forty teams participating in the contest.

Workshop "From research to patent"

European Patent Office, Instituto Nacional de Propriedade Industrial, University of Porto

2018-10-10 to 2018-11-07

This workshop provided comprehensive training on patent basics, intellectual property rights, and the patenting process, including European Patent Office procedures. It also covered the development of intellectual property strategies and the commercialization of research outcomes.

Covered topics:

- The European Patent Office by Pedro Borges
- Introduction to intellectual property rights by Tiago Leitão
- Steps towards a granted patent by Pedro Borges
- Exercise session: What is new? What is inventive? What is technical? by Pedro Borges

- Respecting the timeline is crucial; Coverage of the patent (understanding claims) by Pedro Borges
- Searching for patents (Espacenet) by Pedro Borges
- Developing an IP strategy by Luís Ferreira
- Commercialising research results by André Fernandes

Summer/Winter Schools

Cognitive and Affective Neurophysiology Summer School: Acquisition, processing, and analysis of EEG signal

Faculty of Psychology and Education Sciences, University of Porto

2023-07-17 to 2023-07-21

The course was held at the Laboratory of Neuropsychophysiology and had a duration of 36 hours.

- Introduction to the EEG by Fernando Ferreira-Santos;
- The EEG laboratory by Fernando Barbosa;
- Introduction to the ERP by Tiago O. Paiva;
- ERP Research Design by Tiago O. Paiva;
- Principles of EEG data collection by Catarina Fernandes, Helena Garcez, and Prune Mazer;
- Signal processing and data extraction by Catarina Prata and Rita Almeida;
- Statistical analysis of ERP data by Fernando Ferreira-Santos;
- Reproducibility and open science practices in EEG/ERP research by Fernando Ferreira-Santos and Rita Almeida.

SYSTEC Summer School - Estimation, Control, Optimisation and Data Science

Faculty of Engineering, University of Porto

2022-09-01 to 2020-09-09

This summer school was organised by the Research Centre for Systems and Technologies (SYSTEC) in collaboration with the Advanced Production and Intelligent Systems Associated Laboratory (ARISE). The objective is to provide students with experience in applications for Cyber-Physical Systems in Robotics, Energy, Mobility, Production Systems and Health.

Covered topics:

- Introduction to Drones by Anuj Regmi
- Deep&Machine Learning by Rui Gonçalves
- Optimisation by Margarida Ferreira
- Path-following control for autonomous vehicles by Fernando Fontes
- Advanced Manufacturing Systems - Optimisation in Industrial Settings by Gil Gonçalves
- Designing and Developing Robotic Solutions using Freeware tools by Gustavo Andrade
- Electric mobility (Case studies and successes) by Adriano da Silva Carvalho

Introduction to Robotics for applications in Ocean Observations, Archaeology, and Ecosystems Mapping

Faculty of Engineering, University of Porto

2020-08-03 to 2020-09-03

- Terminology and basic concepts in Maritime Robotics by João Tasso Sousa (LSTS)
- Sensors by Paulo Dias (LSTS)
- Vehicles by Maria Costa (LSTS)
- Underwater Communications by José Pinto (LSTS)
- Models, Planning and Control by João Tasso Sousa (LSTS)
- LSTS/OceanScan's Toolchain by Keyla Lima (LSTS)
- Artificial Intelligence in Maritime Robotics by Kanna Rajan (NTNU)
- Multi-Vehicle Planning by José Pinto (LSTS)
- Basic concepts in ocean observation (Oceanography, Exploration, Satellite) by Carlos Barrera (PLOCAN), Leonardo Cruz (PROOCEANO), Gerard Dooly (CRIS/MaREI), Renato Mendes (CIIMAR-UP / CESAM-UA), Katy Croff Bell (MIT Media Lab), and Isabel Iglesias (CIIMAR)
- Applications in Archaeology by Filipe Castro (TEXAS A&M)
- Mapping applications (Research, Ecology, Military) by Trygve Fossum (NTNU)
- Legal Regime of Maritime Robotics by Eliana Silva Pereira (CIIMAR)
- Mechanical Design by João Galante (LSTS)

EUGLOH Summer School on Biomedical Data Processing and Global Aspects of COVID-19 (4 ECTS)

University of Szeged

2020-07-06 to 2020-07-10

- (Biomedical) data collection, signal processing and analyses
- Artificial intelligence and machine learning in
  - Natural language processing
  - Biological image analysis
  - Gene expression analysis
- Image processing applications
- From literature knowledge to mechanistic modelling
- Health data science and management
- Statistical decision making
- Dissemination of scientific results

EUGLOH Summer School on Large-Scale Facilities for Global Health (2 ECTS)

Paris-Saclay University

2020-06-29 to 2020-07-02

Large-scale facilities offer unique opportunities to explore materials and living matter. It is sometimes difficult to grasp to what extent these facilities can be valuable to solve scientific issues related to global health. With this in mind, the EUGLOH Alliance is organising a 4-day intensive course on large-scale facilities (SOLEIL synchrotron, MAX IV synchrotron and ELI-ALPS laser centre) to raise awareness of students and staff on the possibilities of facilities that contribute to the European research landscape. A depth overview of career opportunities, operations, techniques and applications (biomedical and environmental) of these light sources will be given. The last two days of the school will be dedicated to practical sessions to apply for beamtime allocation.

Diogo Peralta Cordeiro
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Seminars

Micro-credentials - Broadening learning opportunities for lifelong learning and employability

University of Lund in cooperation with the Swedish Council for Higher Education

2021-05-20

A one-hour session about micro-credentials with André Hesselbäck, from the Swedish Council for Higher Education. André has been the Swedish representative in the consultation group for the report on “A European approach to micro-credentials”, and he is currently participating in the recognition project STACQ - Stacking Credits and the Future of the Qualification that aims to support institutions in their evaluation of micro-credentials.

This webinar was the starting point of a series of meeting discussions within EUGLOH aiming to contribute to the consultation.

André has been the Swedish representative in the consultation group for the report on “A European approach to micro-credentials”, and he is currently participating in the recognition project STACQ - Stacking Credits and the Future of the Qualification that aims to support institutions in their evaluation of micro-credentials. He is also a member of a group appointed by the Association of Swedish Higher Education to establish national guidelines for admissions to Master programmes in Sweden. He has many years of experience in academic recognition in the form of admission/credit transfer and a special interest in transnational education, counterfeiting and fraud universities. André is a founding member of the EAIE Task Force Digital Student Data Portability (DSDP). In 2001, André earned a PhD from the Department of Finno-Ugric Languages at Uppsala University.

Webinars with Barbara Oakley

University of Szeged

2020-10-24

Barbara Oakley is a Professor of Engineering at Oakland University in Rochester, Michigan. Her work focuses on the complex relationship between neuroscience and social behaviour. She created and teaches Coursera - UC San Diego’s "Learning How to Learn", one of the world’s most popular massive open online courses with over three million registered students, along with other popular "Top MOOCs of All Time". Barb is a New York Times best-selling author who has published in outlets as varied as the Proceedings of the National Academy of Sciences, the Wall Street Journal, and The New York Times - her book A Mind for Numbers has sold over a million copies worldwide, translated into twenty languages.

Professor Oakley holds three webinars for students and teachers of the EUGLOH Community: Learning How to Learn, Digging Deeper into the Science of Learning, and Lessons from the Trenches of Online Teaching in a Pandemic Era.

EUGLOH Seminars on EU Funding Programmes

Ludwig-Maximilians-Universität München, Germany (LMU) in cooperation with the European Research and Project Office GmbH

2020-09-22 to 2020-09-30

Introduction to relevant EU programmes for educational and research project funding (e.g. individual grants, mobility grants, collaborative projects), while also providing practical tips on how to turn an idea into a successful project proposal and looking into strategies to maximise the impact of your research.

EUGLOH Seminars on Tissue and Organ Bioengineering

Paris-Saclay University

2020-09-21 to 2020-09-24

The current state of the research on organ bioconstruction. Experts of the fields discussed and addressed, in an interdisciplinary approach, different themes relating to cell biology, biomaterials science, and bioprinting as well as essential clinical applications.

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Seminars, Presentations and Workshops

Introduction to Git: Mastering Version Control

2023-06-15 at Symposium on Electrical and Computer Engineering of DCE23, University of Porto

> DCE23 "Doctoral Congress in Engineering" was held on June 15th and 16th of 2023, at the Faculty of Engineering of the University of Porto.

Git is a powerful version control software that helps you to keep track of different versions of your code (or other types of text as your thesis), collaborate on your code (or reports) with other people, and experiment with new changes to your code. It's used in industry and in many open-source projects. This tutorial will provide participants with a hands-on opportunity to learn the fundamental concepts and leverage the features offered by Git.

My workshop has included the following topics:

- *rsync*, *diff* and *patch*;
- Overview of Revision control systems;
- Briefing on *RCS* - Revision Control System;
- Briefing on *svn* - Subversion;
- Configuring Git and setting up GPG for secure commits;
- Hands-on with many *git* commands;
- Tags;
- Branching and merging;
- Storage areas;
- A brief look at the Git Internals;
- Version-control etiquette.

Dependable Computing

2023-05-{4, 17} at University of Porto

> This 1h talk was done at the Faculty of Engineering on May 4th via Porto Space Team and at the Faculty of Sciences on May 17th via NuCC-FCUP and Hackers at Porto. It has included the following topics:

- Model Driven Development (MDD)
- Introduction to Real-Time Embedded Systems (RTES) (emphasis in Hard)
- Functional requirements
- Temporal requirements

- Dependability requirements
- Execution Management
- Introduction to Reliability, Availability, Maintainability, and Safety (RAMS)
- Architecture and Components (in Space Avionics)
- Safeguard Mechanisms (emphasis in Redundancy)

Real-time Embedded Systems

2023-02-25 at Spaceway, Online

This 4h lecture was part of the Online and Live course "Software & Data Engineering in Space" by Spaceway. This lecture topics has included:

- Model Driven Development (MDD);
- Real-time Modelling, Scheduling, RTOS;
- Execution Management;
- Reliability, Availability, Maintainability, and Safety (RAMS);
- Software Development Methodologies;
- Architecture and Components;
- Safeguard Mechanisms;
- Memory Management.

ANTAEUS - Computing in Space

2023-02-08 at Jornadas do Espaço do Laboratório para a Órbita, Universidade da Beira Interior

This 1h talk has covered the following topics using ANTAEUS CubeSat as the main case study:

- Execution Management;
- Reliability, Availability, Maintainability, and Safety (RAMS);
- Software Development Methodologies;
- Architecture and Components;
- Electronic Components;
- On-Board Buses & Interfaces;
- Determinism;
- Safeguard Mechanisms.

Algorithms Documentary TV Series - Ep. 4: Public Space

2022-11-04 at RTP 3, Television

Series of six thematic television documentaries that address essential technological questions: Cryptocurrencies/Blockchain, Social Networks/Public Space, Artificial Intelligence/Privacy.

I have discussed the impact of the algorithmic decision on the content we consume and the discussions we have.

GNU social v3 and Unbound Actors

2022-05-05 at 15th U.PORTO Young Researchers Meeting

Presentation of FEP-2100, the context and how we created it. This presentation was distinguished as the Best Oral Communication, in the "Engineering" area of this edition.

NGI breaks down walls: decentralise social networking with ActivityPub

2021-04-19 at NLnet, Online event

As a developer of the federated universe, I've contributed to the first webinar of this event, in which representatives of the European Commission, the European Data Protection Supervisor and the European Parliament discussed the possibilities of the federation and how the European Commission can announce relevant events on the federated universe. Through two webinars and a workshop, NGI Zero and the ActivityPub-community will showcase to national and European administrations how the decentralised social networking protocol ActivityPub can help European institutions retake their online presence.

IndieWeb and Decentralised Social Networks

2021-02-11 at NuCC UPdate 2021, Online

A brief introduction and overview of an initiative started in 2011 that has been gaining popularity. This talk explored the principles and values of privacy, participation and diversity of this vibrant network. It contrasted it with the selfish business practices of the non-neutral exchange platforms populating the rest of the internet.

A Tour of ActivityPub

2019-05-17 at Faculty of Sciences, University of Porto, Porto, Portugal

The ActivityPub protocol is a decentralised social networking protocol based upon the ActivityStreams 2.0 data format. It provides a client-to-server API for creating, updating and deleting

content and a federated server-to-server API for delivering notifications and content. In this **Talks@DCC**, we will go for a small tour through the history of the Fediverse, the context in which ActivityPub was introduced, and the internals of its implementation among other challenges we find on the software and networks engineering of a federated social network. At the end of this journey, we should be able to understand better some of the advantages of this kind of social platform as well as some of the technical complications in their maintenance and conception.

Mentoria FCUP in the I Meeting of U.Porto's Transversal Program of Peers Mentoring

2019-02-10 at Faculty of Engineering, University of Porto, Porto, Portugal

I presented a summary on the development and results of the Faculty of Sciences' Mentoring program at the I Meeting of U.Porto's Transversal Program of Peers Mentoring in the Grand Auditorium of the Faculty of Engineering of the University of Porto.

Introductory Workshop to Robotics

2018-12-19 at Happy Code, Maia, Portugal

A 3 hours workshop about Automation Science, Complex Systems, Digital Electronics, the Internet of Things and how all those relationships enable the making of Robots. There was a detailed practical component to help better illustrate those concepts using sensors and actuators.

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Testimonials

Hugo Sales - Visrez, Full-stack developer

2023

> Amazing understanding of general software engineering principles, of web standards (such as semantic HTML, ARIA, ActivityPub), a great project coordinator and a great writer.

José Miguel Marques - Ubisoft Montpellier, QA Programmer

2023

> Proactively seeking to gain knowledge in many different areas, has a lot of attention to detail and goes to great lengths to read a lot of material in order to keep himself informed and be able to help others as well. This showed clearly during our time at college, both as a colleague during classes and also as a student representative, as well as on his work on extracurricular projects.

João Tasso Sousa - Head of LSTS - Underwater Systems and Technology Laboratory, FEUP

2022

> Diogo has an inquisitive mind, with broad interests in control, computation, digital culture, and entrepreneurship. His written work is very excellent. He has a very organised mind and the technical foundations to address and solve complex problems. Diogo is bright, intelligent, a team worker, efficient, effective, very pleasant to work with, very serious about research and strongly committed to pursue research in the interest of society.

João Gama Oliveira - Laboratory of Instrumentation and Experimental Particles Physics (LIP), Visiting Researcher

2022

> We have exchanged opinions on research topics in the fields of physics, complex systems, and computing. I recognize his high capacity for problem analysis, communication, critical thinking, and teamwork.

Eduardo Marques - Professor of Computer Science at the Faculty of Sciences of the University of Porto

2022

Diogo entered our First Degree in Computer Science at the University of Porto in September 2017. Being one of his professors during the degree, I could watch him show a good knowledge in the field, ability to learn new matters, ability to work with others, initiative and originality, willingness to work towards goals, motivation and seriousness, open-mindedness, and emotional stability and maturity.

Tiago Magalhães - Systems Engineer, MEng in Computer Graphics

2020

Inquisitive, Introspective and continuously growing, a true scientist. One of the best software professionals I have ever met.

Bruno Casteleiro - Computer Scientist

2019

As a Diogo mentee, I was always guided when tasks turned out to be more difficult and provided with the necessary attention to discuss ideas. Besides, Diogo never gave me solutions, but hints or suggestions of places to look at. Diogo perfectly balanced his interactions with me and, as a result, my Google Summer of Code experience was the richest possible. His passion for the project was positively contagious. It was a pleasure to work with him and I am sure I will keep contributing to GNU social.

Daniel Supernault - Pixelfed Maintainer

2018

I wanna give a shout out to Diogo who produces quality code fast. It's really cool to work with him!

Mikael Nordfeldth - GNU social Maintainer

2018

Active, persistent and productive.

Gonçalo Oliveira - Software Engineer

2017

A brilliant man, in a relationship with his surroundings, constantly seeking the truth. An excellent asset to any company.

Phablulo Joel - Federal University of Pernambuco (UFPE), Software Researcher

2016

Simply amazing. Diogo manages to turn abstract ideas into reality in a simple and effective way.