

EDUCATION

University College Dublin Master of Science, Computer Science	<i>Sep. 2021 - Present</i> Dublin, Ireland
Polytechnic University of Catalonia, School of Informatics Bachelor of Science, Computer Science (Erasmus Mobility: Uppsala University, Sweden)	<i>Sep. 2015 - Jul. 2019</i> Barcelona, Spain

EXPERIENCE

Microsoft <i>Software Engineer II</i>	<i>May. 2022 - Jul. 2023</i> Dublin, Ireland
<ul style="list-style-type: none"> Office Performance Team: developed and maintained software to measure and improve performance in the Office Suite Implemented a Machine Learning anomaly detection pipeline for the detection of faulty frames in app traces. 	
Institute of Space Studies (IEEC, ICE-CSIC) <i>C++ Developer</i>	<i>Sep. 2019 - Sep. 2021</i> Barcelona, Spain
<ul style="list-style-type: none"> Developed an AI scheduling framework used by different ground (<i>Telescopi Joan Oró (TJO) telescope, Cherenkov Telescope Array, European Southern Observatory, ESO</i>) and space (<i>ARIEL-ESA</i>) based observatories (C++, Boost, MySQL) Set up Continuous Integration (using GitLab CI) and Dockerization for multiple internal projects and libraries. Maintenance of the user website interface used to request observations for the TJO robotic telescope (PHP, Python). 	
IThinkUPC <i>Intern, Full Stack Web Development</i>	<i>Feb. 2019 - Aug. 2019</i> Barcelona, Spain
<ul style="list-style-type: none"> Developed a web app with Java using Agile methodology and the Spring Framework for one of Spain's major banks. Learned and worked with HTML/CSS/JS/jQuery for the frontend and SQL for the database. Maintenance of the University's Website (using Plone). Developed Python scripts to automate routine tasks. 	

RESEARCH EXPERIENCE

IonSAT UPC	<i>Aug. 2019 - Present</i>
<ul style="list-style-type: none"> Extending the algorithm developed during my BSc thesis to work in real-time (stellar flare estimation using GNSS data). Improving framework and testing new potential methods for the detection, classification and study of stellar flares. 	
Peer-Reviewed Publications	
<ul style="list-style-type: none"> Ariel mission planning. Scheduling the survey of a thousand exoplanets. JC Morales, N Nakhjiri, J Colomé, I Ribas, E García, D Moreno, F Vilardell (2022). <i>Experimental Astronomy</i>. https://arxiv.org/abs/2201.07491 Real-time detection, location and measurement of geoeffective stellar flares from Global Navigation Satellite System data Hernández-Pajares, M., Moreno-Borràs, D. (2020). <i>Space Weather</i>, 18. https://doi.org/10.1029/2020SW002441 	

SKILLS AND INTERESTS

Main languages	C++, C, Java, Python, Fortran
Other languages	C#, MATLAB, Awk, Haskell, Assembly (x86), Prolog, R, L ^A T _E X, SQL, Bash
Tools/Other	Git, Docker, OpenMP, OpenGL, Maven, GitLab, Linux, Windows
Languages	English (TOEFL iBT 114/120), Spanish (Native), Catalan (Native)

PROJECTS

Multi-layer Perceptron (Neural Network)	https://github.com/mbdavid2/multi-layer-perceptron
Multi-layer Perceptron implemented from scratch in Python using NumPy	
Detection of stellar flares using GNSS data	https://github.com/mbdavid2/TFG-GNSS
BSc Thesis. Algorithms for the detection of flares from the Sun and far-away stars.	
ANTLR4 Compiler	https://github.com/mbdavid2/antlr4-Compiler
Grammar recognition of a simplified C-language as well as Type Check and Code Generation systems.	
Car AI using Genetic Algorithms in Unity	https://github.com/mbdavid2/CarsGeneticAI
Cars find the best behavior/parameters to drive in a given track, improving each generation.	
2D puzzle platformer game developed in Java library	https://github.com/mbdavid2/gamedev-2d
University project for the Game Development module	