

**EDUCATION**

<b>University College Dublin</b> Master of Science, Computer Science	<i>Sep. 2021 - Present</i> Dublin, Ireland
<b>Polytechnic University of Catalonia, School of Informatics</b> Bachelor of Science, Computer Science	<i>Sep. 2015 - Jul. 2019</i> Barcelona, Spain
<b>Uppsala University (Erasmus+ Mobility)</b> Bachelor of Science, Computer Science	<i>Sep. 2018 - Feb. 2019</i> Uppsala, Sweden

**EXPERIENCE**

<b>Institute of Space Studies of Catalonia (IEEC, ICE-CSIC)</b> <i>C++ Developer</i>	<i>Sep. 2019 - Sep. 2021</i> <i>Barcelona, Spain</i>
<ul style="list-style-type: none"> <li>Developed an <b>AI scheduling framework</b> to be used by different ground (<i>Telescopi Joan Oró (TJO) robotic telescope, Cherenkov Telescope Array (CTA), COLIBRI</i>) and space (<i>ARIEL-ESA</i>) based observatories (C++, Boost, MySQL)</li> <li>Set up <b>Continuous Integration</b> (using GitLab CI) and <b>Dockerization</b> for multiple internal projects and libraries.</li> <li>Maintenance of the user website interface used to request observations for the TJO robotic telescope (PHP, Python).</li> </ul>	
<b>IThinkUPC</b> <i>Intern, Full Stack Web Development</i>	<i>Feb. 2019 - Aug. 2019</i> <i>Barcelona, Spain</i>
<ul style="list-style-type: none"> <li>Developed a web app with <b>Java</b> using Agile methodology and the Spring Framework for one of Spain's major banks.</li> <li>Learned and worked with <b>HTML/CSS/JS/jQuery</b> for the frontend and <b>SQL</b> for the database.</li> </ul>	
<b>Polytechnic University of Catalonia, Communication Services</b> <i>Intern</i>	<i>May 2018 - Aug 2018</i> <i>Barcelona, Spain</i>
<ul style="list-style-type: none"> <li>Maintenance of the University's Website (using <b>Plone</b>). Developed <b>Python</b> scripts to automate routine tasks.</li> </ul>	

**RESEARCH EXPERIENCE**

<b>IonSAT UPC</b>	<i>Aug. 2019 - Present</i>
<ul style="list-style-type: none"> <li>Extending the algorithm developed during my BSc thesis to work in real-time (stellar flare estimation using GNSS data).</li> <li>Improving current algorithms and testing new potential methods (e.g. using Machine Learning) for the detection, classification and study of stellar flares.</li> </ul>	
<b>Peer-Reviewed Publications</b>	
<ul style="list-style-type: none"> <li>Real-time detection, location and measurement of geoeffective stellar flares from Global Navigation Satellite System data: new technique and case studies.</li> </ul>	
Hernández-Pajares, M., Moreno-Borràs, D. (2020). Space Weather, 18. <a href="https://doi.org/10.1029/2020SW002441">https://doi.org/10.1029/2020SW002441</a>	

**SKILLS AND INTERESTS**

<b>Main languages</b>	C++, C, Java, Python, Fortran
<b>Other languages</b>	C#, MATLAB, Awk, Haskell, Assembly (x86), Prolog, R, L <sup>A</sup> T <sub>E</sub> X, SQL, Bash
<b>Tools/Other</b>	Git, Docker, OpenMP, OpenGL, Maven, GitLab, Linux, Windows
<b>Languages</b>	English (TOEFL iBT 114/120), Spanish (Native), Catalan (Native)
<b>Areas of interest/experience</b>	Software Engineering, Artificial Intelligence, Machine Learning, Space research

**PROJECTS**

<b>Multi-layer Perceptron (Neural Network)</b>	<a href="https://github.com/mbdavid2/multi-layer-perceptron">https://github.com/mbdavid2/multi-layer-perceptron</a>
Multi-layer Perceptron implemented from scratch in Python using NumPy	
<b>Detection of stellar flares using GNSS data</b>	<a href="https://github.com/mbdavid2/TFG-GNSS">https://github.com/mbdavid2/TFG-GNSS</a>
BSc Thesis. Algorithms for the detection of flares from the Sun and far-away stars.	
<b>ANTLR4 Compiler</b>	<a href="https://github.com/mbdavid2/antlr4-Compiler">https://github.com/mbdavid2/antlr4-Compiler</a>
Grammar recognition of a simplified C-language as well as Type Check and Code Generation systems.	
<b>Car AI using Genetic Algorithms in Unity</b>	<a href="https://github.com/mbdavid2/CarsGeneticAI">https://github.com/mbdavid2/CarsGeneticAI</a>
Cars find the best behavior/parameters to drive in a given track, improving each generation.	