Àlex Batlle Casellas

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Hi, my name's Àlex! I'm a very curious and open minded university student based in a town near Barcelona, the very cosmopolitan capital city of Catalonia.

I'm currently studying at CFIS, an excellence center within the Polytechnic University of Catalonia (UPC-BarcelonaTech), where I'm majoring in both Mathematics and Data Science and Engineering. I have a special interest in DL/RL, in which I have based my academic career, and in which I'm basing my professional path as well.

Regarding my journey through education, in the past I skipped a high school year when I was 11, making me a year younger than my subsequent classmates. This made me grow up at a fast pace, making me learn how to adapt to certain situations both socially and academically, and had and still has a big impact on my personality. After mandatory high school in Canet de Mar, I went to Institut Moisès Broggi, a public high school in Barcelona, where I was member of the first promotion that obtained the IB Diploma, while also obtaining the Spanish Baccalaureate. After the IB, I was admitted to UPC to start the Bachelor's Degree in Mathematics on Fall 2018, and at the start of my second year in university, on Fall 2019, I was accepted at CFIS to course also the Data Science & Engineering Bachelor's Degree, where I currently am studying.

While going through my education years, I have collaborated and worked in many projects. When in mandatory high school years, I participated in AI and Robotics activities, both within high school teams and individually, gaining a lot of drive and interest for these fields. During these years, I also was admitted to be a member of the 12th promotion of Estalmat Catalunya, a weekly advanced mathematics activity carried out by voluntary teachers for young teenagers with a special interest and talent for mathematics. After the mandatory high school years, while coursing the IB, I also participated in the Mathematics Summer Camp and in the Algorithmics and Programming summer course of UPC. I also participated in the first competition of AIColiseum. During my university years, I have done many programming coursework and some side projects, which can be seen on my GitHub profile, some of which have been in collaboration with other students. Also, I have compiled an uncomplete list of my course notes and exercises in this repository, which are mainly in Catalan. In the summer of 2019, I started my volunteer work as a summer camp surveyor in a local organization from my town, with a team of 30 other good and lovely people. During all of these years, I have worked as a mathematics and science tutor for students on lower courses. On summer 2021, I worked as a Software Engineering Intern at HP, where I learned the basics of ROS and built a graphical interface to view and manipulate ROS launch files as a graph. During the summer of 2022 and extending over to February 2023, I worked as an intern engineer at Qualcomm within the AI Research division, where I worked on several AI tasks regarding communication networks.

Regarding my interest for Artificial Intelligence, I was mainly motivated at the start by the competitions and activities on robotics that I participated in as a young teenager. After that, my motivation also came from Isaac Asimov's Robots and Foundation book saga, which I

read while finishing off the IB Diploma Programme and starting my university degree. Fueled by both fiction and expectations of the future, and by real, hands-on experience using AI algorithms on university coursework and side projects, I started the Data Science and Engineering degree on 2019, and from then on, my interest has only grown. Within this degree, I had a course on Deep and Reinforcement Learning, where I learned a lot about reinforcement learning algorithms, RNNs, self-supervised learning, and generative models, to name a few things. I graduated with honours from said course, and I am still broadening my knowledge of the subject and learning a lot online. During my last university years, I have also been attending or following several side courses. To name a few: a course on Mathematical Aspects of Algorithmic Learning and Deep Neural Networks, available online, a four-session mini-course on quantum computing from a mathematical point of view, held at FME (the School of Mathematics and Statistics of UPC), and the Geometric Deep Learning course from the African Master's in Machine Intelligence given by Michael Bronstein, Joan Bruna, Taco Cohen and Petar Veličković. In the past I have also participated in the IDAO contest (2021, 2022) with two friends of mine.

To summarize, I'm really interested in research on machine/deep/reinforcement learning and algorithmic learning. I'm currently reading about policy optimization, applications of the several existing RL algorithms and the development of new ones. The most recent development in my career has been getting to write my Bachelor's Final Thesis at TU Delft, on autonomous robot exploration using GNNs.