UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
School of Professional & Executive Development

Tools for Artificial Intelligence with MATLAB, initiation (TAIM)

José Antonio Lázaro

Introduction

Barcelona, 3, February 2025

Methodology

- Face-to-face class
- Slides on *My_Tech_Space* https://campus.talent.upc.edu/inici/
- Participation

- Questions at any time, arranging meetings when necessary

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Presentations

Professor data:
José Antonio Lázaro
Address any doubt to: jose.antonio.lazaro@upc.edu with the subject: **TAIM doubt *student name surname***

https://campus.talent.upc.edu/activitat/PLYpZQXaR1InroQLLvdb0mDGJ7y4ro/aules/~b1V6MWkxMjJ5MlU9/participants/

Objectives

… create **basic** AI projects in the three main branches: supervised learning, unsupervised learning and reinforcement learning, thus acquiring a basis for future projects

Contents

- Introduction to AI with MATLAB.
- Tools for adjusting curves.
- Practical machine learning methods for classification problems.
- Basic deep learning tools for image recognition.
- Introduction to intelligent controllers learning from experience (reinforcement learning) with MATLAB.

Requisites

Students should have previous training in:

- Linear Algebra or Introduction to Mathematics (or equivalent)
- Fundamentals of Physics (or equivalent)
- Computer Fundamentals (or equivalent)
- Basic knowledge of Python (or equivalent)

Evaluation criteria

Assistance

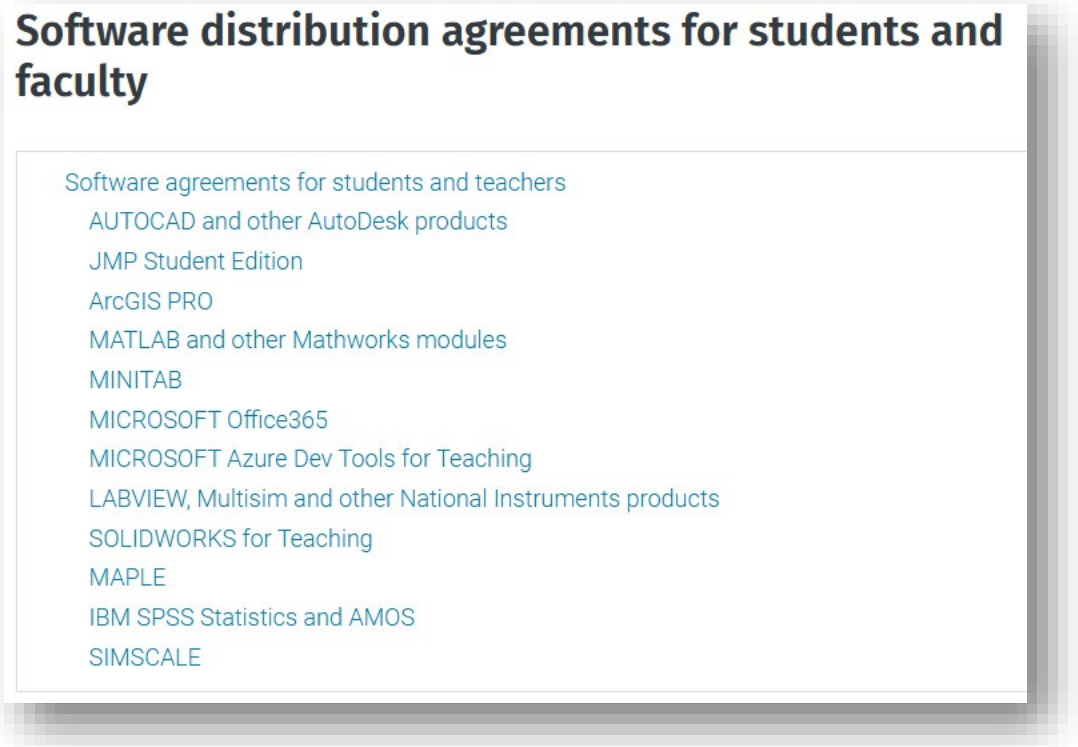
At least 80% attendance during class hours is required.

Solving exercises, quizzes or exams

Individual tests with the aim of evaluating the degree of learning and acquisition of skills.

Introduction to MATLAB

- You have a full free (as UPC's student) MATLAB licence at Mathworks -> Generate, if you do not have your account with:
- https://serveistic.upc.edu/ca/distsoft/el-servei/upc-student-software-licenses



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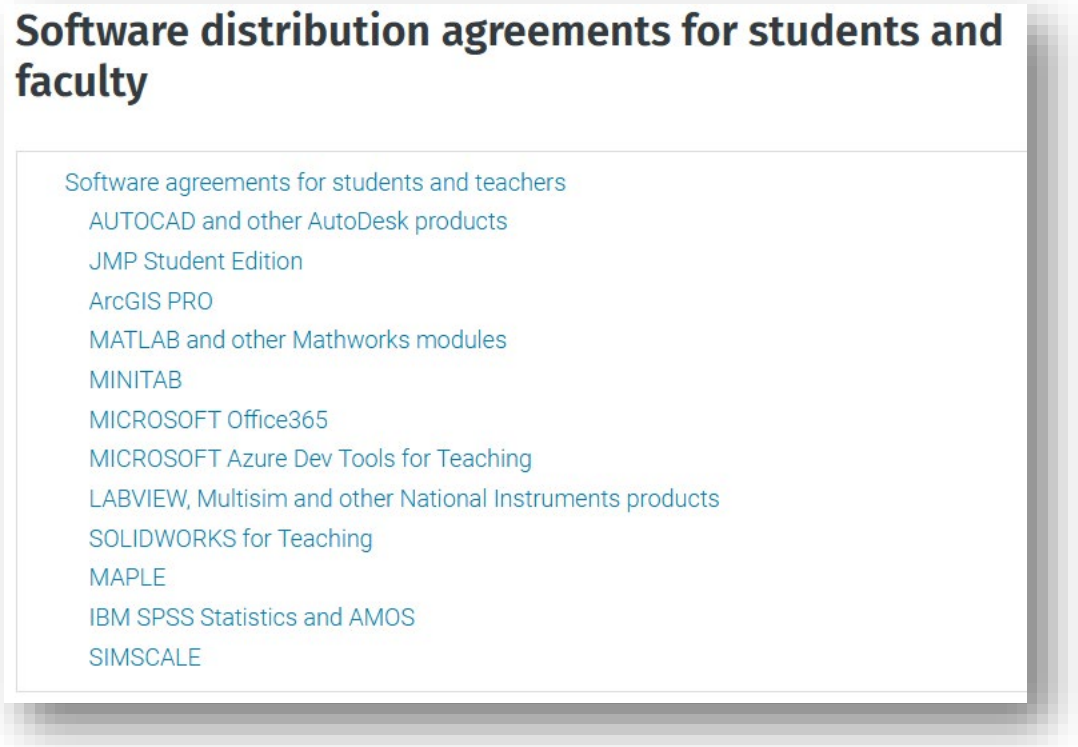


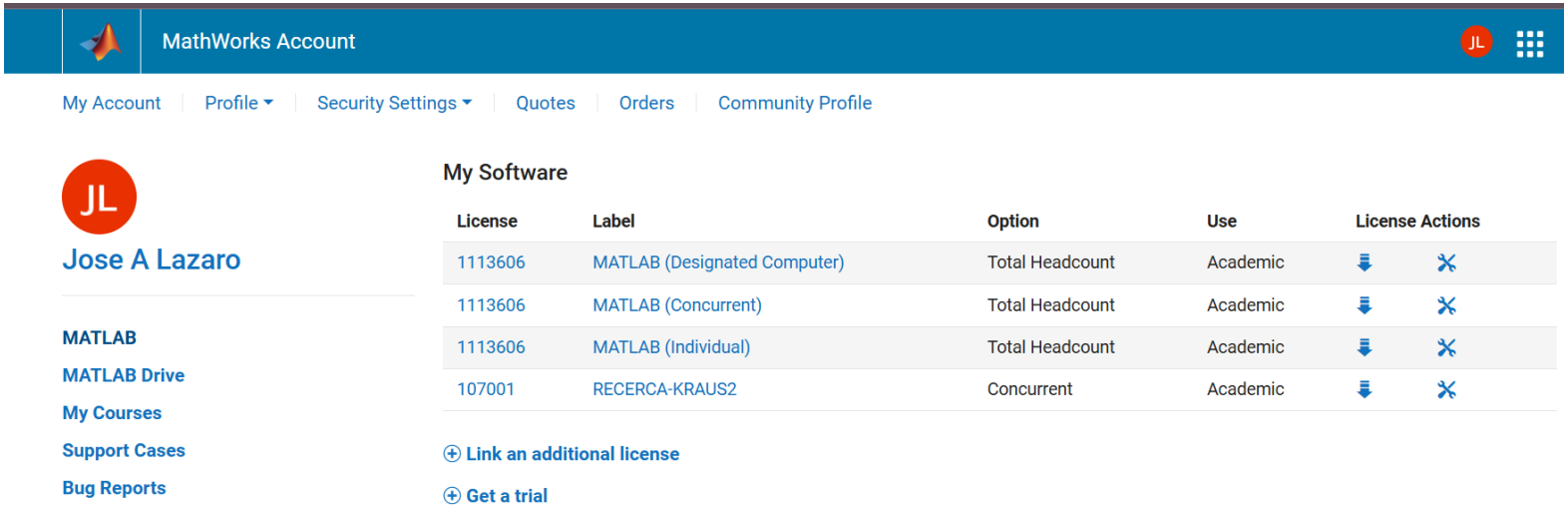
Introduction to MATLAB

MATLAB and other Mathworks modules

- The agreement with Mathworks allows you to use software that can be downloaded directly from their website. To download the software, you must create an account at http://es.mathworks.com using your UPC email address.
- Once the account has been registered with the university email, the student can access the Mathworks UPC website: https://es.mathworks.com/academia/tah-portal/politecnica-de-catalunya-31113606.html
- You will access the website with your UPC credentials and you will be prompted for your mathworks account to associate it with your UPC account.
- **Important information:** during the registering process, it asks if you want to associate the account with the university, answer 'No'. Once created, access the new account to check that everything is OK and then the account can be associated with the university.
- This website gives access to technical support, online courses and specific teaching tools.
- In this FAQ you will find all the information about the MATLAB license of the UPC.
- Our license includes all matlab toolboxes.
- The license allows the use of Matlab online (https://matlab.mathworks.com/) and Matlab Mobile that connects to MathWorks cloud with your account.

*** Every year, in April, you must reactivate the license. In order to do this you must select "Activate using Internet" in the "Home" tab of Matlab, section "Resources", select "Help > Licensing > Activate Software" and restart MATLAB after activation is complete.

Introduction to MATLAB

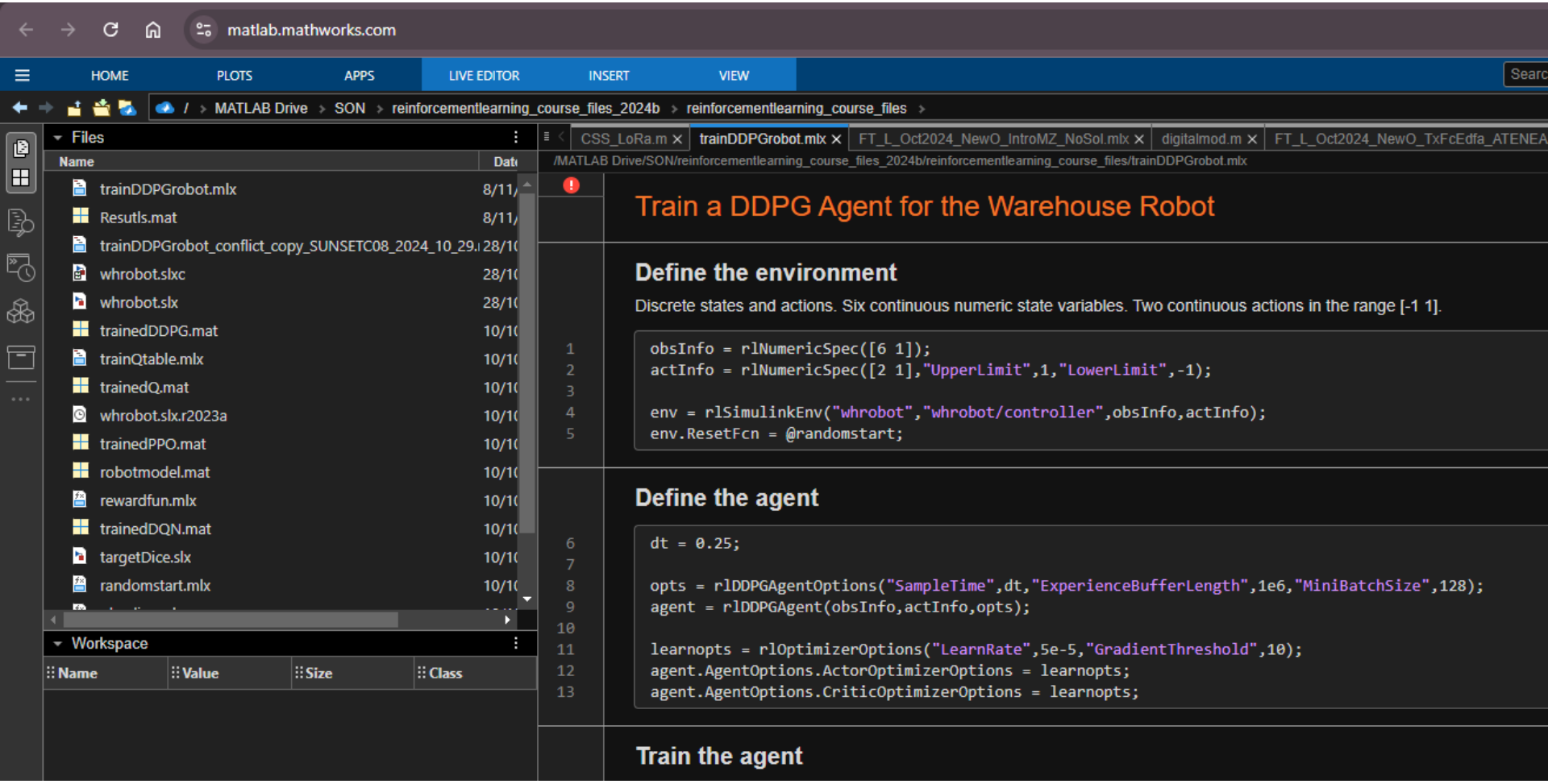


You will get a profile similar to this one.

You can work:

- At the Classroom's PC
- In a local installation on your PC
- With Matlab Online

Introduction to MATLAB



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Introduction to MATLAB

Do you have any basic knowledge of MATLAB?

- If not -> Good News: In 2 hours you can get the basics!
- https://matlabacademy.mathworks.com/details/matlab-onramp/gettingstarted

Introduction to MATLAB

- You can do it in English: https://matlabacademy.mathworks.com/details/matlab-onramp/gettingstarted
- Or in Spanish: https://matlabacademy.mathworks.com/es/details/matlab-onramp/gettingstarted (maybe not the last version, though.)