

# Angelo Tulbure

COMPUTER ENGINEER

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## Work Experience

### Pattern Recognition and Human Language Technology Research Center

Valencia, Spain

STUDENT RESEARCH INTERN

Feb. 2024 - Jul. 2024

- Designed and **fine-tuned Transformers** and **Large Language Models (LLMs)** for **binary classification**, distinguishing critical thinking from conspiracy theories in English and Spanish, achieving F1-macro scores of 0.9235 and 0.8747, respectively.
- Developed advanced **span-level detection** techniques to identify narrative elements within texts, **setting a new state-of-the-art** span-F1 score (0.6372 English, 0.6358 Spanish) through **precise tokenization** and **advanced data augmentation**.

### meXage S.r.l.

Bologna, Italy

C# DEVELOPER INTERN

Mar. 2022 - Jul. 2022

- Developed in C# a dynamic plugin for CAD software**, enabling the creation and integration of custom objects using XML deserialization and DLL generation, streamlining the workflow for engineers and designers.
- Designed a user-friendly graphical interface in WPF and XAML**, simplifying interaction with CAD systems through intuitive XML management and real-time object visualization.

## Education

### Politecnico di Milano

Milan, Italy

MSC IN COMPUTER SCIENCE AND ENGINEERING

Sep. 2022 - Dec. 2024

- Main courses:** Recommender Systems, Natural Language Processing, Operations Research, Performance Evaluation, Databases, Design and Implementation of Mobile Applications, Formal Languages, Technologies for Information Systems, Data Management for the Web, IoT.
- Thesis:** Conspiracy Theories vs Critical Thinking Using an Ensemble of Transformers and Large Language Models [**Paper**].
- Erasmus Program:** Universitat Politècnica de València (UPV) (Valencia, Spain)
- Certificates:** Cambridge Advanced English (CAE) - C1, Spanish Language Certificate of Attendance (B2).

### Università di Bologna

Bologna, Italy

BSC IN COMPUTER ENGINEERING

Sep. 2019 - Oct. 2022

- Main courses:** Algorithms, Data Structures, Operating Systems, Automatic Controls, Software Engineering, Web Technologies, Applied Maths.
- Thesis:** SymbolEditor: Dynamic creation of a plugin for a generic CAD [**Paper**].
- Erasmus Program:** Warsaw University of Technology, (Warsaw, Poland)

## Projects

### TripTales: Interactive Travel Journal App

DART, FIREBASE, C++

- Designed and implemented a **cross-platform mobile app** using Flutter, enabling users to craft travel stories via an infinite canvas, dynamic cards. Integrated Google Maps API for location tagging, enhancing trip visualization and storytelling [**Code**].
- Designed an intuitive UX with **interactive media customization**, allowing users to personalize texts, images, and videos. Implemented resizing, rotating, layering, and real-time editing, with smooth touch gestures for seamless interaction.

### Cancer Drug Treatment Control

MATLAB, SIMULINK

- Modeled and linearized **dynamic systems** for cancer cell treatment, incorporating state-form representation, equilibrium analysis and designed static and dynamic regulators to meet stringent performance specifications, including phase margin, settling time, and noise attenuation [**Code**].
- Implemented and validated **control systems** in MATLAB/Simulink to ensure stability and performance metrics under real-world conditions.

### ElGamal implementation with ECB ciphering mode

PYTHON, KAGGLE, COLAB

- Implemented the **ElGamal cryptosystem** in Python with key generation, encryption, and decryption using the **ECB mode** for ciphering [**Code**].

## Publications

### Conspiracy vs Critical Thinking Using an Ensemble of Transformers

CEUR-WS.org

MAIN AUTHOR

Aug. 2024

- Winner of the **Best Performing Team Award** at the PAN 2024 Lab (CLEF) for the Oppositional Thinking Analysis shared task.
- Developed an ensemble of transformers to differentiate conspiratorial and critical thinking narratives while identifying elements of oppositional discourse, achieving the highest scores in both English and Spanish datasets. [**Paper**].