

# ENRICO BENEDETTI

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## EXPERIENCE

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### National Institute of Informatics

Tokyo, Japan

Research intern

Sept 2023 – Feb 2024, Full-time

- Proposed and worked on a project investigating how to improve the quality of example sentences for language learners using LLMs.
- The main research contributions included a corpus of over 12M sentences, generative and retrieval models, human evaluation experiments and detailed analysis of the collected data.
- Participated in the lab's weekly activities, such as seminars and reading groups with other researchers, and gave presentations.
- Wrote a paper for a scientific conference (under review) and prepared my Master's thesis.

## EDUCATION

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### M.Sc. in Artificial Intelligence, University of Bologna

Sept 2021 – Mar 2024

CGPA: 28.8/30; Final grade: 110/110 with honors.

Thesis: *Example Sentence Suggestion for Learners of Japanese as a Second Language Using Pre-Trained Language Models.*

### B.Sc. in Computer Engineering, University of Bologna

Sept 2018 – Oct 2021

CGPA: 27.7/30; Final grade: 107/110.

Thesis: *Theory and methods for solving Cryptography CTF challenges (Capture The Flag).*

## PROJECTS

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### AICamp – Text-to-Image | [GitHub](#)

June 2023

- Research survey for the MAI4CAREU project in collaboration with the University of Cyprus.
- Presented and discussed the main sota approaches for the Text-to-Image task, GANs and Diffusion models.

### GarfieldRetrieve: a Deep Metric Learning approach for Retrieving comic strips | [GitHub](#)

Feb 2023

- Curated a dataset of Garfield transcribed comic strips, to perform semantic retrieval.
- Built a retrieval system with Deep Metric Learning and Sentence Transformers, comparing with other methods.

### Human Value Detection with a Hierarchical Deep Learning approach | [GitHub](#)

Feb 2023

- Team project in NLP on SemEval 2023 Task 4. ValueEval: *Identification of Human Values behind Arguments.*

### Part-of-speech Tagging with RNNs | [GitHub](#)

Nov 2022

- Implemented POS tagging using different architectures based on Recurrent Neural Networks.
- Wrote an article detailing analysis of results and performance.

### 1D Barcode Quality Verification | [GitHub](#)

Sept 2022

- Project for the Image Processing & Computer vision course. A Jupyter notebook and scripts for barcode localization and quality assessment.
- It can produce an analysis according to the IEEE barcode readability guidelines for multiple images at once.

### Capacitated Vehicle Routing Problem | [GitHub](#)

Aug 2022

- Team project for the Combinatorial Optimization course.
- Implemented and documented solving strategies and models for CVRP using Constraint Programming, boolean SAT solving, SAT Modulo Theories and Mixed Integer Programming frameworks.

### League of Legends Bayesian Network | [GitHub](#)

April 2022

- Built a Bayesian Network model of League of Legends competitive match statistics, used to perform inference about win or loss and more match parameters.
- Worked on data preprocessing and feature selection.

## SKILLS

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**Languages:** Italian (native), English (fluent), Japanese (beginner), French (beginner)

**Programming languages:** Python, LaTeX, Java, C, C#, JavaScript, HTML, CSS, Bash, SQL, Prolog, C++, MiniZinc

**Frameworks, Engines, Libraries, etc.:** TensorFlow, PyTorch, pandas, Hugging Face, spaCy, OpenCV, Unity, z3, Git, UNIX/Linux, Visual Studio Code, GIMP, DaVinci Resolve

## THESIS, PUBLICATIONS

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Enrico Benedetti, Akiko Aizawa, Florian Boudin (2023) *Automatically Suggesting Diverse Example Sentences for L2 Japanese Learners Using Pre-Trained Language Models*. Accepted to: ACL 2024 Student Research Workshop.

Enrico Benedetti (2024) *Example Sentence Suggestion for Learners of Japanese as a Second Language Using Pretrained Language Models*, [AMSLaurea repository](#), [Github](#) ([pdf available](#)).