

Simone Caldarella

Student Intern @ SISLab

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EDUCATION

ARTIFICIAL INTELLIGENCE SYSTEMS | M.Sc.

October 2020 – Current | University of Trento, Italy

- Language: English
- Computer Vision specialization

INFORMATION ENGINEERING AND COMPUTER SCIENCE | B.Sc.

July 2017 – September 2020 | University of Brescia, Italy

- Thesis: "DeepFake: a technological evolution with use cases between threats and opportunities"

PROJECTS

OPEN DOMAIN ASPECT BASED SENTIMENT ANALYSIS | NLP

Two-stage Target/Aspect Based Sentiment Analysis Model

- Target extraction model and Polarity classification model developed using Bert as backbone
- Language and libraries: Python, Transformers, PyTorch, NumPy, Matplotlib
- Github repository: ABSA

PERSON ATTRIBUTE RECOGNITION AND RE-IDENTIFICATION | DEEP LEARNING

Pipeline with a multi-label multi-class CNN for Person AR and a Siamese CNN for Person Re-ID

- Custom CNN models developed using ResNet18 as backbone, followed by custom classifiers and module. Techniques to deal with data unbalancing employed (Balanced Cross Entropy, Focal Loss)
- Language and libraries: Python, PyTorch, TensorBoard, Matplotlib, NumPy, Matplotlib

HANDMOUSE | IMAGE PROCESSING

Hand tracking detection algorithm using laptop's RGB camera

- Custom background subtraction algorithm combined with "Good Features to tracks" as relevant hand keypoints and convex hull computation
- Languages and libraries: Python, OpenCV, NumPy, Tkinter
- Github repository: HandMouse

ROBOTIEEE | APP DEVELOPMENT

Android app for communications between SumoRobot and a planning algorithm online, developed for IEEE Metrology for Industry 4.0 and IoT

- Android App developed to receive instructions from a server via http requests, parse them and send them to the SumoRobot via bluetooth protocol
- Languages and libraries: Java, Android, AndroidStudio, Bluetooth, HttpURLConnection
- Github repository: RobotIEEE

YOU CANT SEE ME | LOW LEVEL PROGRAMMING

Steganography algorithm developed using only C for audio and images

- BMP images and WAV audio parsing algorithm developed to find the best bits in encoding to hide a secret message, without modifying aspect of the file.
- Language and libraries: C
- Github repository: YouCantSeeMe

ACHIEVEMENTS

CHAIRMAN

CHAIRMANSHIP IN IEEE STUDENT
BRANCH OF BRESCIA
2018-2019

JUDGE AND MENTOR

JUDGE AND MENTOR OF NASA SPACE
APPS CHALLENGE BRESCIA
2019

IEEEEXTREME 1° PLACE IN ITALY

1° PLACE IN ITALY AT INTERNATIONAL
HACKATHON ORGANISED BY IEEE
2018

EXPERIENCE

INTERNSHIP @ SISLAB

UNIVERSITY OF TRENTO | DISI
Jan 2022 - Present
Development of Dialogue
Responses Generation models

CERTIFICATE

IELTS - 6.5 | 9/2020

SKILLS

PROGRAMMING

Python • Java • C • LaTeX
Shell • Matlab

LIBRARIES/Frameworks

PyTorch • HuggingFace •
SpaCy • Matplotlib
OpenCV • NumPy

TOOLS/PLATFORMS

Git • Github • Android Studio
Docker • Overleaf • Excel

FIELDS OF INTEREST

Deep Learning • Machine
Learning • Computer Vision
NLP • Statistics • Calculus
Software Engineering