# Stefano Bonetto

AI Software Engineer (CV and ML developer) with 4 years of coding experience.

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## Education

**University of Trento** **Sep 2023 – Present**
*Master's Degree in Artificial Intelligence Systems, admitted among 100 limited positions, ranked **36th**.* *Trento, Italy*

**University of Trento** **Sep 2020 – Jul 2023**
*Bachelor's Degree in Computer, Communications, and Electronic Engineering, achieving a grade of **99/110**.* *Trento, Italy*

## Experience

**Object Detection Engineering Intern** **Feb 2023 - Jun 2023**
*Fondazione Bruno Kessler* *Trento (TN), Italy*

- Optimized real-time execution of VideoAnony on NVIDIA Jetson Xavier NX for the **MARVEL** research project, balancing speed and accuracy under embedded platform constraints. Achieved up to 78% reduction in processing time using TensorRT inference optimizations.

## Technical Skills

**Programming Languages:** Python, C, C++, Java, JavaScript, SQL
**Frameworks & Libraries:** PyTorch, TensorFlow, ROS, Docker, OpenCV
**Development Tools:** Git, LaTeX
**Expertise:** Machine Learning, Deep Learning, Computer Vision, Natural Language Processing
**Languages:** Italian (*mother-tongue*), English (*advanced*)

## Relevant Projects

**Research Project on Brain Gliomas** **Sep 2024 - Present**
*Computer Vision Researcher* *Trento, Italy*

- Currently working on a deep learning project focused on the analysis (**detection**, **segmentation**, and **classification**) of **brain gliomas** from MRI images in collaboration with **CISMed** and the Neurochirurgical Unit of S. Chiara Hospital (Trento, Italy).

**Test Time Adaptation via Segmentations and Focused Feature Learning** GitHub repository here **Feb 2024 - Jul 2024**

- Development of **Test Time Adaptation (TTA)** strategies to enhance the robustness of pre-trained neural networks against domain shifts using **MEMO** (Marginal Entropy Minimization with One Test Point).
- **Refinement** of MEMO by incorporating **image segmentation** and **GradCAM** to help the model focus on informative image regions, ensuring more accurate predictions in unseen environments.

**3D Camera Calibration and Reconstruction** GitHub repository here **Aug 2024 - Oct 2024**

- Developed a 3D trajectory reconstruction system using camera calibration, integrated with 3D ball tracking for real-time analysis and a tool to map field points across multiple camera feeds.

**Natural Language Processing with BERT and RNNs** **Mar 2024 - Jun 2024**

- Conducted multiple projects focused on **Natural Language Processing (NLP)** utilizing **BERT** for tasks such as **Aspect-Based Sentiment Analysis** (GitHub repository here) and **multi-task learning** on the ATIS dataset (GitHub repository here).
- Explored optimizations for **Recurrent Neural Networks (RNNs)** to enhance performance in various NLP applications (GitHub repository here), contributing to improved accuracy and efficiency.

**Autonomous Agents: a BDI Approach to Single and Multi-Agent Systems** GitHub repository here **Feb 2024 - Sep 2024**

- Focused on developing autonomous agents to play a game aiming to collect and deliver parcels to designated locations using a BDI architecture.

**Robotic Arm Motion Planning with YOLO Recognition** GitHub repository here **Jan 2023 - Jun 2023**

- Developed a motion planning system for a **UR5 robotic arm** to manipulate objects, and implemented a program using YOLO for precise LEGO block recognition and repositioning.

## Relevant Coursework

- Deep learning
- Computer Vision
- Robotics
- Natural Language Understanding
- Advanced Computer Vision
- Signal, Image and Video

## Soft Skills

**Organisational Skills:** Leadership and time management from group projects; task management to achieve project goals.
**Communication Skills:** Effective communication and team collaboration; strong self-discipline.