DEEP FRIDAYS

Seminars and meetings with D.L. researchers from academia and industries

Organizer: Prof. **Andrea Asperti**

When: all Fridays at 17 p.m.
Where: Aula Ercolani 2, via Mura Anteo Zamboni 2B (or via Teams)

Calendar

November 5 2021

> **affiliation: Musixmatch**
>
> **abstract:** Musixmatch AI reveals the structure and meanings of lyrics by the use of powerful Machine Learning models and Natural Language Processing techniques based on the largest lyrics database.
>
> **speaker: Mariastella Tavella**. M. Stella Tavella lavora nell'ambito music-tech da oltre 5 anni. Laureata al Politecnico di Milano in Ingegneria Informatica, specializzata in analisi dei segnali audio e Music Information Retrieval, inizia la sua carriera occupandosi di Music Recommendation Systems e Audio Classification presso la startup belga Musimap, attualmente lavora a Musixmatch dove si occupa dell'applicazione tecniche di Deep Learning su musica e testi di canzoni per l'estrazione di metadati.

November 12 2021

> **affiliation: Marcegaglia SpA**
>
> **abstract:** The product and process development for the automotive sector is mandatory and needs sophisticated mathematical models in order to achieve a metallurgically based design of the process conditions. The new frontier, opened only few years ago, in the development of advanced steel grades is represented by the digital integration of different processes via a sophisticated combination of predictive mathematical models and advanced monitoring devices (Industry 4.0 concept). In this talk, we present a few

projects launched at different Marcegaglia plants during the last 3-4 years aiming to to fully digitalize/integrate many processes, from hot rolling, pickling, cold rolling down to galvanizing.

speaker: Alessandro Ferraiuolo R&D Manager Marcegaglia SpA. After degree in Physics, started on 1991 at Finmeccanica SpA as a researcher in aeronatical composite materials. On 1994, joined the Centro Sviluppo Materiali as metallurgist. From 1997 up to 2010 worked as principal metallurgist for the advanced strip casting projects in ThyssenKrupp AST and Krefeld plants. On 2012 patented the first stainless TWIP steel based on low Ni and high Cu-N-Mn composition. On 2015 joined Marcegaglia Ravenna steel company as R&D manager.

November 19 2021

affiliation: Kiwitron

abstract: Deep Learning in industrial anticollision devices.
This seminar addresses the three main issues of using DNNs in industrial devices:

1. How to design DNNs to enable edge device inference?
2. What methods to use to be sure that the DNNs on the device are high performing in the deployment context?
3. How to design the pipeline of MLOps for large numbers of devices to face dataset drifts?

speakers:

- **Federico Frontali**, AI&CV Team Leader
- **Luca Antognetti**, M.D. Computer Eng., AI Engineer
- **Flavia Pasquali**, M.D. Applied Math., Data Scientist
- **Daniele Salerno**, M.D. Computer Eng., AI Engineer

November 26 2021

affiliation: eSteps

abstract: Who communicates better, deep learning or the patient-physician?
Deep learning applied to patient-to-doctor communication and how it can improve the accuracy of the passively acquired patient's medical data while allowing a more emphatic communication between doctor and patient during the face-to-face visit.

speaker: Nidhal Louhichi. CEO di eSteps e Ingegnere Biomedico.

December 3 2021

affiliation: Dep. of Pharmacy and Biotechnology, UNIBO

abstract: A Geometric Approach to Deep Learning.
We examine some geometrical features of stochastic gradient descent in popular algorithms (Deep Learning). We present some mathematical open problems leading to insight into the inner workings of the algorithms.

speaker: Rita Fioresi. Rita Fioresi is a UCLA graduate, currently a professor of Geometria at Unibo. She is interested on how geometry can be employed to elucidate problems in other areas, like physics or computer science. She is the authors of three monographs on mathematical models for physics and two textbooks of Linear algebra, besides many articles in peer reviewed journals.

December 10 2021

affiliation: NCS

abstract: Machine learning algorithm for motion analysis in the clinical setting.
Magneto-inertial measurement units (MIMUs) are inexpensive and reliable non-invasive tools for analyzing the movement developed by the joints of the human body. Recently, NCS Company launched a feasibility study to understand whether clinically valuable information can be obtained from MIMUs through machine learning algorithms to help clinicians with diagnosis and therapy. The presentation is intended to show the activities we have developed so far, as well as the main results.

speaker: Fabrizio Nardini. Fabrizio Nardini received his PhD in Applied Mechanics at the University of Bologna in 2016 focusing on articular biomechanics. He is currently R&D Engineer at NCS Company and adjunct professor at the University of Bologna, where he holds the second module of the Fundamentals of Applied Mechanics T-2 course (bachelor degree in Automation Engineering). The application of machine learning algorithms to motion analysis is one of his main activities at NCS Company.

December 17 2021

affiliation: CRIF Spa

abstract: Credit Scoring using Deep Neural Networks.
CRIF is a global company specializing in credit bureau and business information, with a strong expertise on data science consultancy and solutions for financial institutions. The use of Deep Learning techniques and Cloud infrastructures in the financial field allowed for scalable and fully automated solutions. The seminar will focus on the application of Deep Neural Network to Credit Scoring, i.e. the process to predict whether an applicant for a loan is likely to repay a debit.

speakers:

- Giacomo Graffi: Data Scientist with a background in Computer Science and Artificial Intelligence, he holds a Bachelor's and a Master's degree in Computer Engineering. Giacomo is currently working in the Global Advanced Analytics team, developing AI solutions for financial services.
- Lorenzo Brusco: Cloud Solution Architect with a background in Computer Science and Artificial Intelligence, he holds a Bachelor's and a Master's degree in Computer Science. Prior to joining CRIF, he worked as a Full Stack Developer, Machine Learning Developer and Mobile Developer. Lorenzo is currently working in the Global Technology team, designing and creating cloud solutions for financial services.