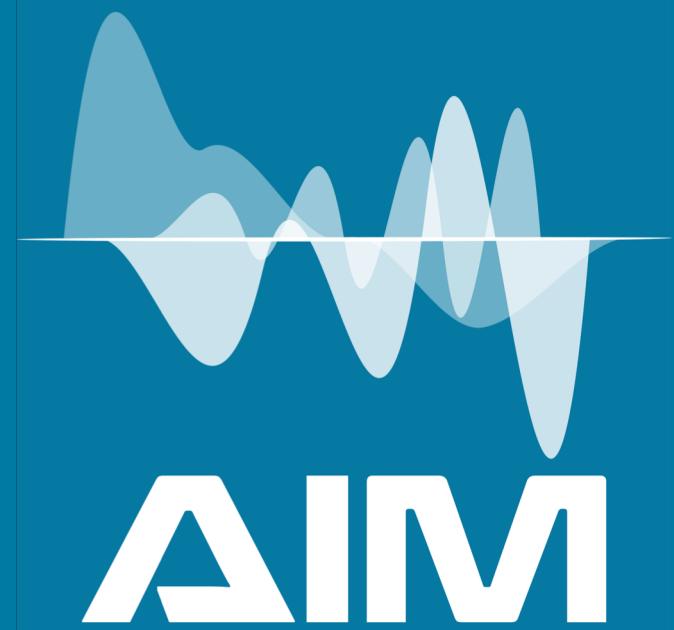


Artificial Intelligence in Medicine



INFN – CSN5 2019-2021 – PISA

M.E. Fantacci

Dipartimento di Fisica dell'Università di Pisa e INFN

Chi siamo



Personale di ricerca,
assegnisti, borsisti,
specializzandi,
dottorandi INFN e UNIPI

Barca Patrizio
Fantacci Maria Evelina (RL)
Ferrari Elisa
Lamastra Rocco
Lizzi Francesca
Palumbo Letizia
Retico Alessandra (RN)
Spera Giovanna
Tucciariello Raffaele

Personale INFN, Centro
di Calcolo

Arezzini Silvia
Ciampa Alberto
Mazzoni Enrico

Laureandi UNIPI

Alba Alessia
Barbieri Davide
Capanni Leonardo
Laruina Francesco
Scapicchio Camilla

Collaboratori Stella
Maris e IMAGO7

Biagi Laura
Bosco Paolo
Buonincontri Guido
Costagli Mauro
Tosetti Michela



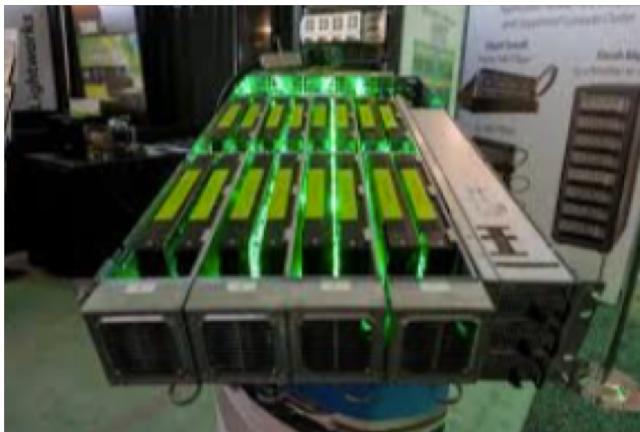
Su cosa possiamo “contare” @ Centro di Calcolo INFN-PI



CPUs: 2x10 cores Intel Xeon E5-2640v4 @2.40 GHz

RAM: 64 GB

GPUs: 4x nVidia Tesla K80, con 2x GPUs Tesla GK210, 24 GB RAM e 2496 CUDA ciascuna
nVidia Tesla V100



Cosa stiamo facendo/faremo



AIM 1: Data harmonization

AIM1.T1 - Multi-site data harmonization in MRI (PI, BA, BO) [Task expected duration: 3 years, starting month: 1]

M1.1 (31-12-2019) Identification and coding of Generative Adversarial Network for MRI data harmonization

AIM1.T2 - Multi-site data harmonization in mammography (PI, CA) [Task expected duration: 2 years; starting month: 1]

M1.2 (31-12-2019) Implementation of first prototype of the harmonization algorithm for mammograms

AIM 3: Predictive models

AIM3.T1 - Predictive models for Radiation Therapy treatments (FI, GE, PI) [Task expected duration: 3 years; starting month: 1]

M3.1 (31-12-2019) Creation of database for predictive models for Radiation Therapy treatments

AIM3.T2 - Predictive models for mammography and CESM (PI, CA, BA) [Task expected duration: 3 years; starting month: 1]

M3.2a (30-06-2019) Development of a CNN for automatic classification of breast density in the 4 BIRADS classes

Mammographic data from RADIOMA data sample:

- ~ 8000 clinical mammograms acquired by 4 different RX devices with Gold Standard (4 BIRADS density classes) by an expert AOUP radiologist.
- To be extended to 10000 screening mammograms supplemented by genetic and epidemiological informations and DBT (Digital Breast Tomosynthesis) images.