



Webinar: Introduzione all'intelligenza artificiale

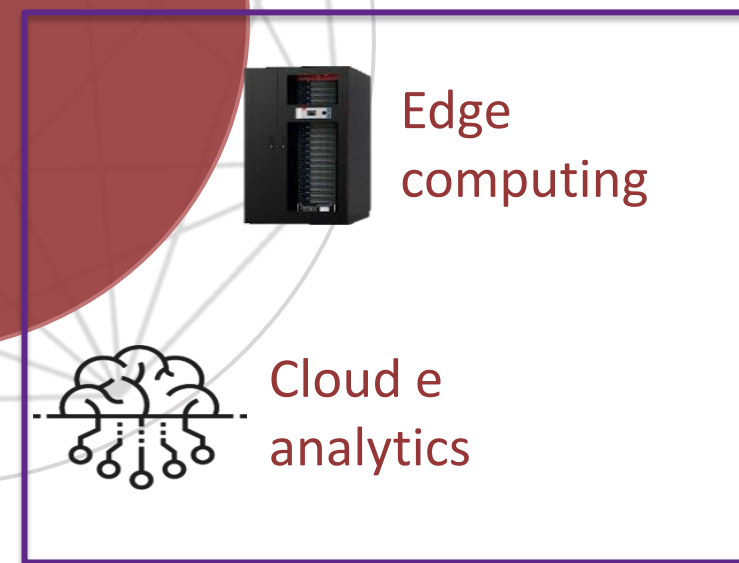
23/06/2022

Le tecnologie

Additive Manufacturing



Rifinitura e metrologia

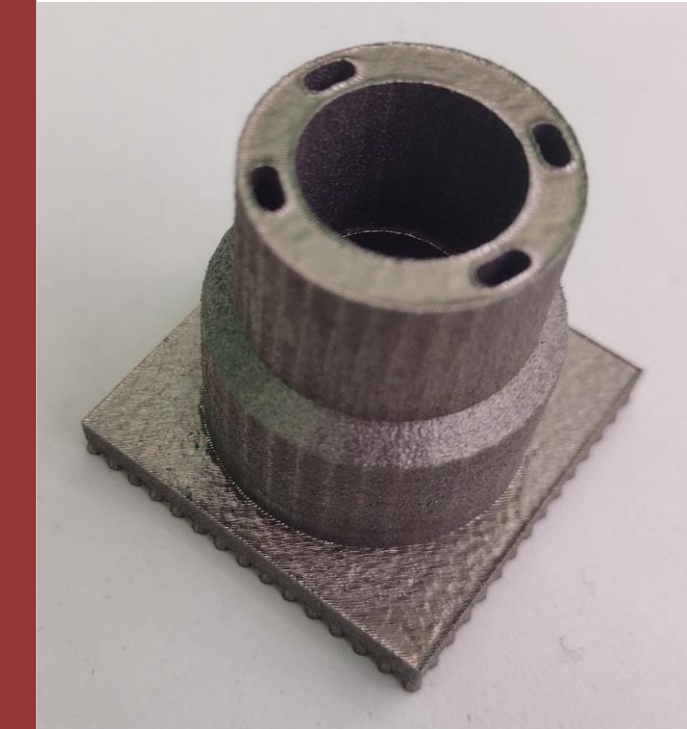


Robotica

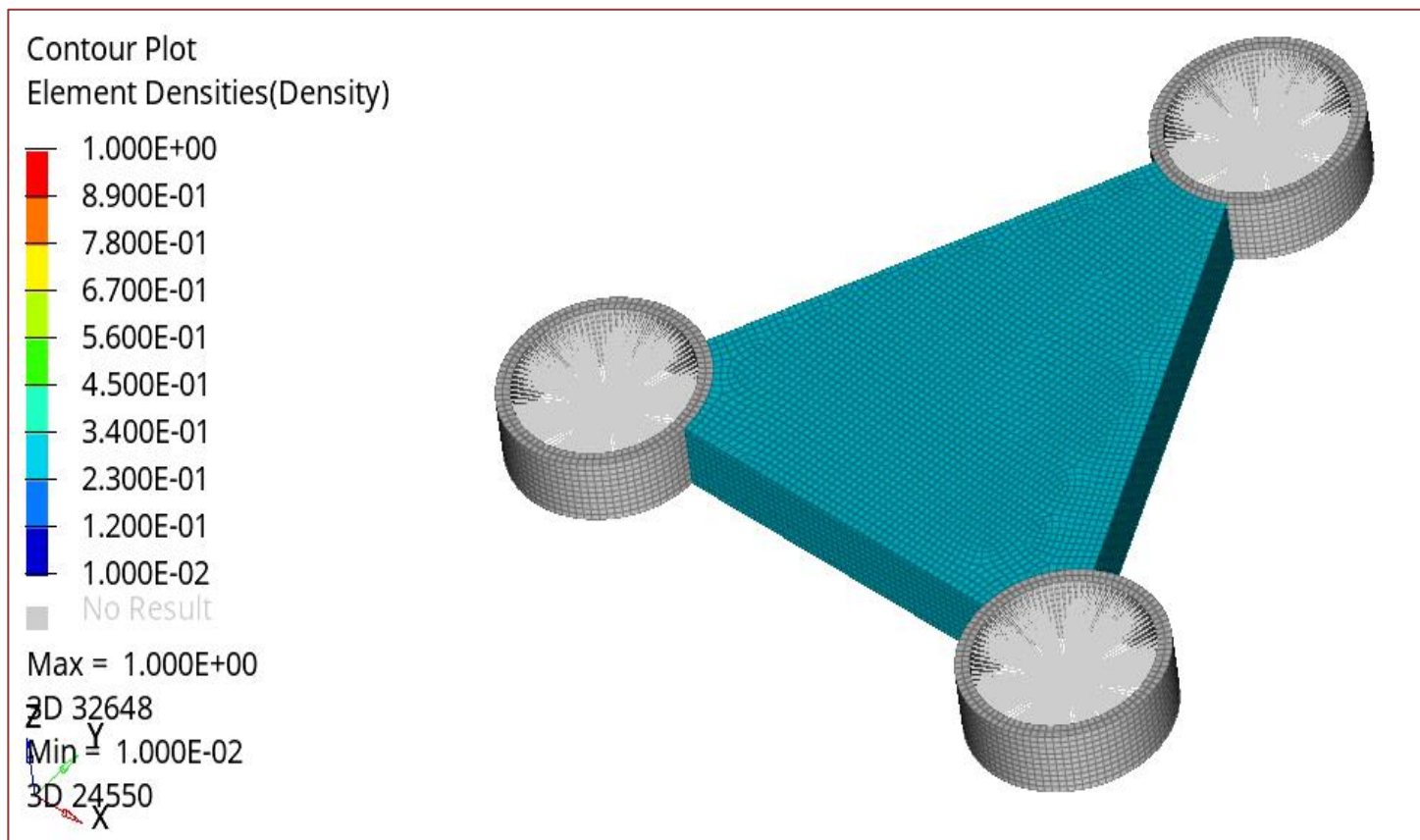
IoT e Big Data



Sisma Mysint 300: post-processing



AI driven Optimization



AMMT

AMMT
Project



POGGIPOLINI



Bonfiglioli
We engineer dreams



ALTAIR



JUNO.AM



GUIDETTI
TECHNOLOGY



Topologic optimization: hydraulic motor distribution unit

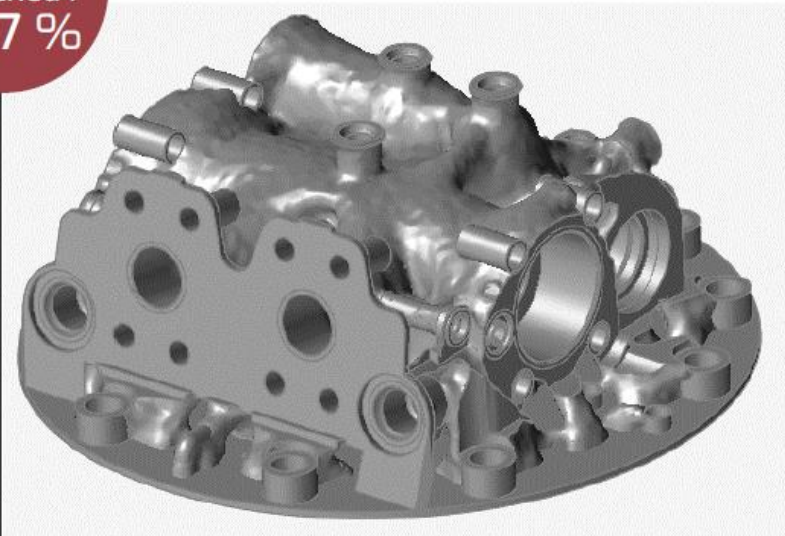
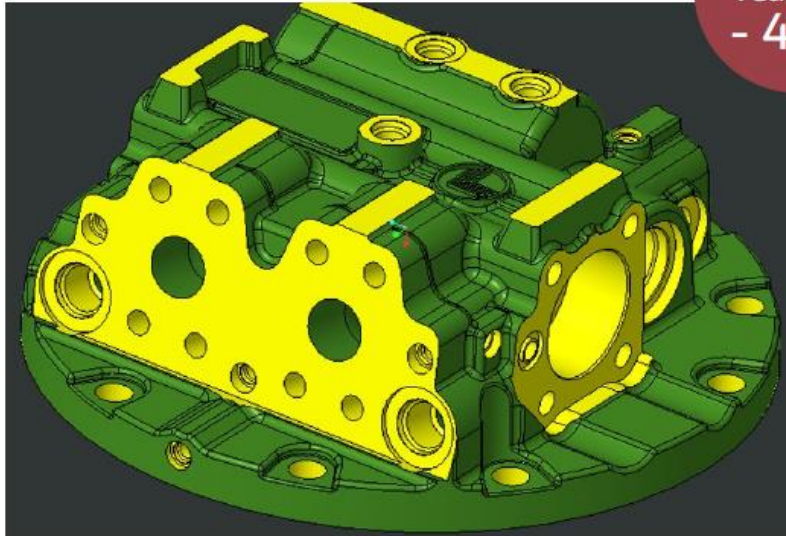
Target weight reduction: 50%

Production: innovative metal AM technology

Maquette demo units (thermoplastic)
only for lay out purpose.

Metal units will be available Q1 2022.

Weight
reduction
reached :
- 47 %

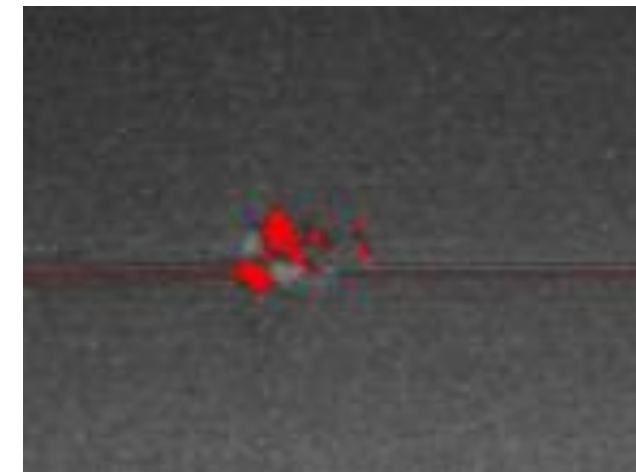
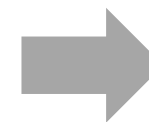
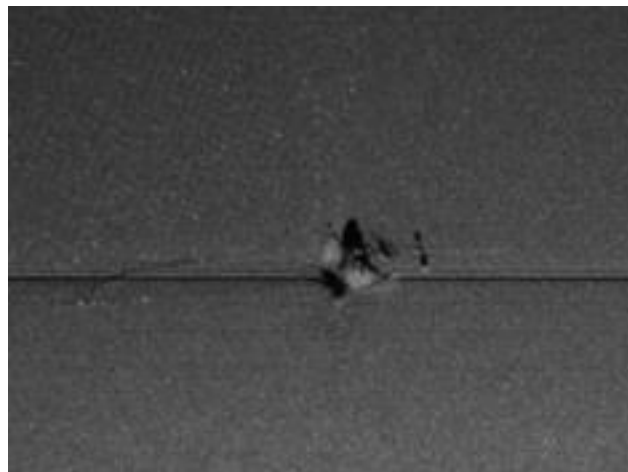


Questo prototipo è parte del progetto "318 - AMMT" cofinanziato dal consorzio BI-REX nell'ambito del Programma Competence Centre del Ministero dello Sviluppo Economico. I contenuti, le opinioni e i dati contenuti sono quelli degli autori e non riflettono necessariamente quelli del consorzio BI-REX o del Ministero dello Sviluppo Economico. Né il consorzio BI-REX né il Ministero dello Sviluppo Economico possono essere ritenuti responsabili di essi.

Raccolta dati da SLM

Visual inspection

- Difetti layer by layer
- Segnatura del coater
- Indice di “gravità”



```

2021-05-04 00:01:04.187 - >>|AUTO|<<----- BEGIN laser marking operations WorkZone 2021_05_03 on SLICE 1535
2021-05-04 00:01:04.187 - >>|LASER|<<Changing power via analog signal. Requested='240', corrected='225.4098', percentage='45.0
2021-05-04 00:01:04.255 - >>|LASER|<<Changing power via analog signal. Requested='140', corrected='129.7814', percentage='25.9
2021-05-04 00:01:04.855 - >>|LASER|<<Laser 'Laser' status changed to 'EMITTING'. StatusChanged; LASE-I0001; State='EMITTING (
2021-05-04 00:01:05.353 - >>|AUTO|<<Moving Supply 1 chamber @ 221.000, NormalSupply.(1)
2021-05-04 00:01:05.861 - >>|AUTO|<<Async Moving Coater @ 461.000 [P2], __REGULAR_PREWORK__
2021-05-04 00:01:11.851 - >>|LASER|<<Changing power via analog signal. Requested='240', corrected='225.4098', percentage='45.0
2021-05-04 00:01:13.877 - >>|IODIAG_ENV|<<Measured temperature: 28.0°C - Measured R.H.: 32.3%
2021-05-04 00:01:13.877 - >>|IODIAG_SENSORS|<<Chamber Pressure: 38.2 mbar - Electrical Cabinet Temp.: 35.9°C - Transformer Temp
2021-05-04 00:01:13.877 - >>|IODIAG_AIR|<<Compensated Flux Speed: 2.30m/sec - Flux Speed (inlet): 23.54m/sec - Flux Temperatur
2021-05-04 00:01:13.877 - >>|IODIAG_GAS|<<Inert gas flux = 0.00 l/min -
2021-05-04 00:01:13.877 - >>|IODIAG_O2MANAGER|<<O2[0] = 0.29% - O2[1] = 0.41% - O2[2] = 0.44%
2021-05-04 00:01:13.877 - >>|IODIAG_FILTER|<<Type=5 - dP[1]: 17.18mbar - dP[2]: 14.64mbar - Police Filter dP: 0.64mbar - System
2021-05-04 00:01:13.877 - >>|IODIAG_PREHEATING|<<Enabled: Yes - Hot Temperature: 190.0°C - A/I Hot Temperature 1: 201.4°C - A/
2021-05-04 00:01:13.877 - >>|MOTORDIAG_WORK_CHAMBER|<<Actual Temperature: 35.0°C - Peak Torque: 0Nm - Lag Error 0um
2021-05-04 00:01:13.877 - >>|MOTORDIAG_SUPPLY1_CHAMBER|<<Actual Temperature: 38.0°C - Peak Torque: 1Nm - Lag Error 1um
2021-05-04 00:01:13.877 - >>|MOTORDIAG_SUPPLY2_CHAMBER|<<Actual Temperature: 36.0°C - Peak Torque: 0Nm - Lag Error 0um
2021-05-04 00:01:13.877 - >>|MOTORDIAG_COATER|<<Actual Temperature: 40.0°C - Peak Torque: 2Nm - Lag Error 699um
2021-05-04 00:01:13.877 - >>|MEM_USAGE|<<By = 'Periodic' - WorkingSet = 340.7 MiB - PeakWorkingSet = 453.0 MiB - PagedMemorySi
2021-05-04 00:01:13.877 - >>|IODIAG_OVERFLOWBIN|<<Ready: Yes - QuotaPercLabel: < 35 % - QuotaPercLevel: 30% - Quota_1: 149.2 -
2021-05-04 00:01:13.877 - >>|IODIAG_LASER|<<Analog Power Demand: 25.0% - Digital Power Demand: 14.0% - Power Demand: 125.0Watt

```

Raccolta parametri di processo

- Protocollo MQTT da parsing log
- Esempi di parametri:
 - Layer
 - Flux speed and humidity
 - Potenza
 - O2 percentage

Visual Inspection e AI



DMG MORI

USE CASE: rilevare condizioni di rischio per l'operatore della DMGMori.

HOW: Ispezione del piano di lavoro per verificare che non ci siano viti assenti o pezzi dimenticati.

Keywords

- Machine learning
- Edge computing
- Servizi Cloud
- IoT
- Security
- Visual Inspection



Software visual inspection

← Data Set / DMG Nuts

Total files: 14 Matching files: 14 Selected files: 0

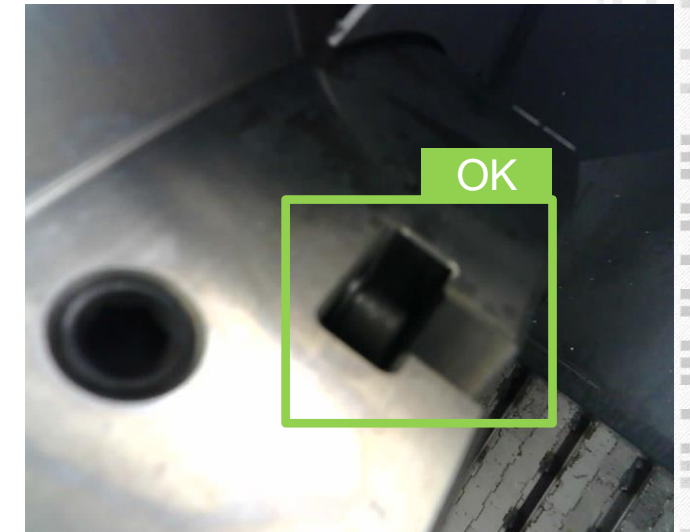
Train model Augment data Auto label Export data set

Assign category Label objects Label actions Select [Icons]

Drop files here

Import files

Grid of 13 image thumbnails, each with an 'Uncategorized' label and 'No objects added' status.



Visual inspection e AI

