

# Machine Vision

## Robot Guidance

Simone Biasini

**SICK**

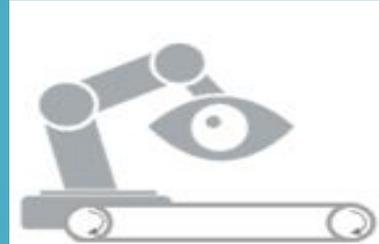
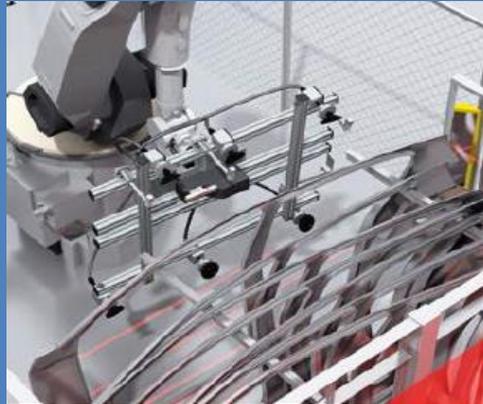
Sensor Intelligence.



**BIN/TOTE PICKING**

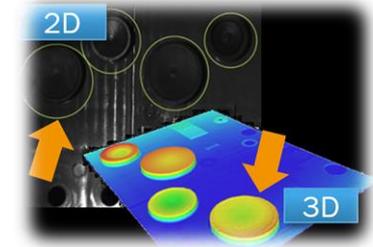


**DE-RACKING**

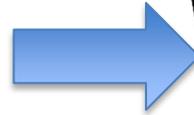


**BELT PICKING**





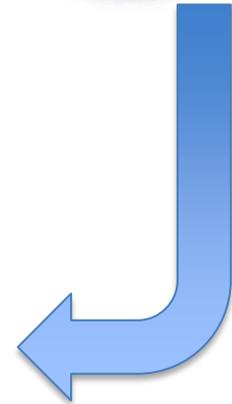
LOCALIZZAZIONE



VALUTAZIONE  
PRESE  
E TRAIETTORIE



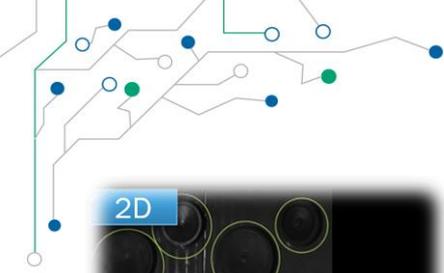
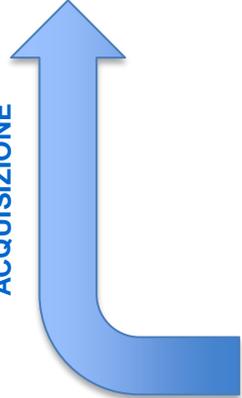
PRELIEVO

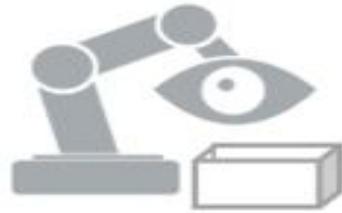


PEZZO  
SUCCESSIVO

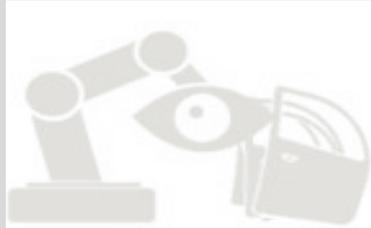


SCANSIONE /  
ACQUISIZIONE





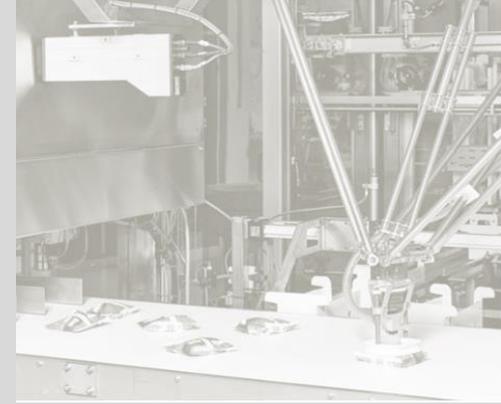
**BIN/TOTE PICKING**



**DE-RACKING**



**BELT PICKING**



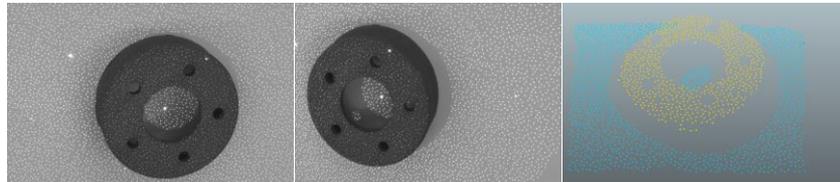
## COS' È IL BIN PICKING?

Sistema, composto da robot e camere di visione, che effettua il prelievo di oggetti noti disposti in maniera casuale (Random Bin Picking) all'interno di cassoni.



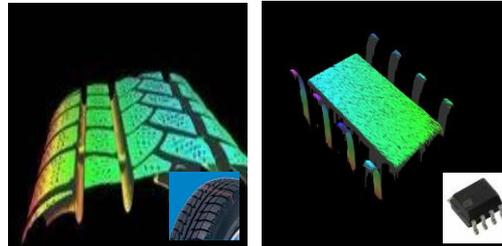
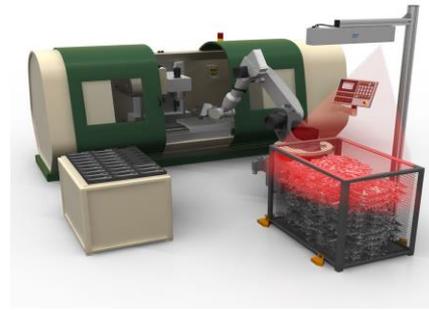
## STEREOSCOPIA

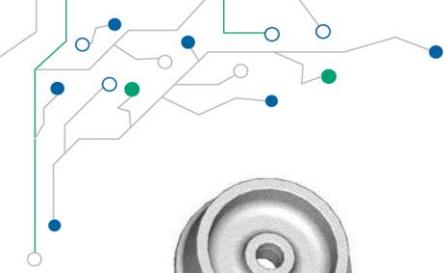
Acquisizione delle immagini con oggetti fermi (o in lento movimento) sotto alle camere.



## TRIANGOLAZIONE LASER

Scansione delle immagini attraverso movimentazione degli oggetti o della camera stessa.



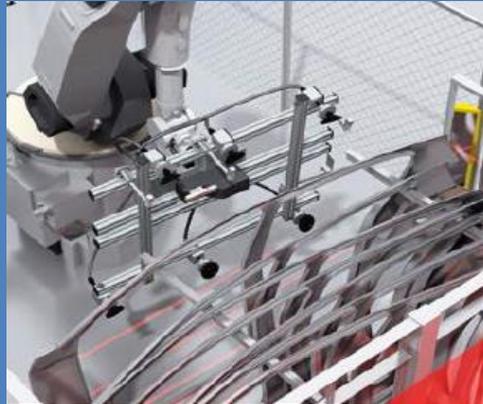




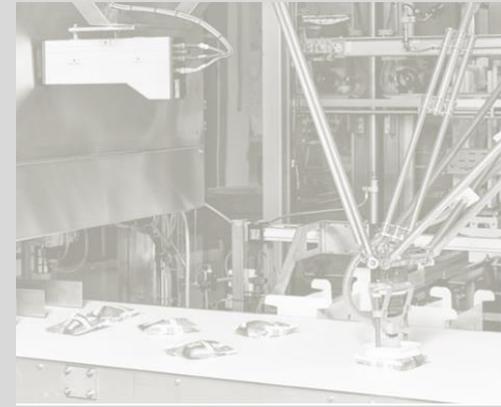
**BIN/TOTE PICKING**



**DE-RACKING**



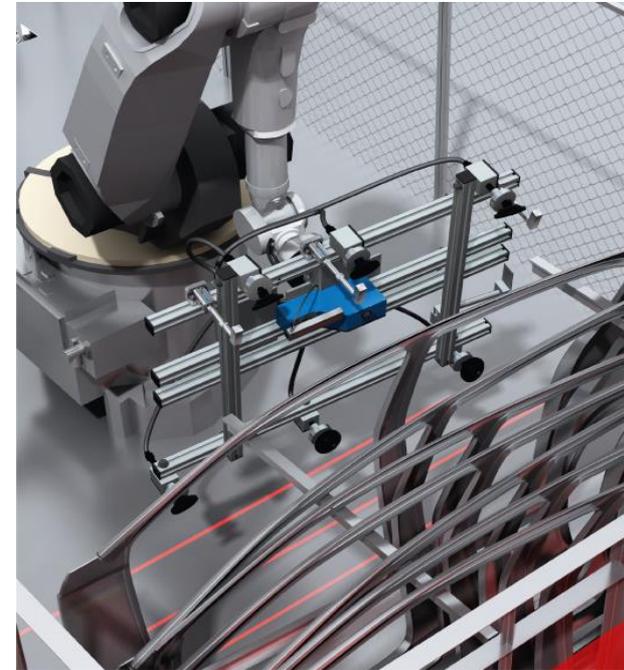
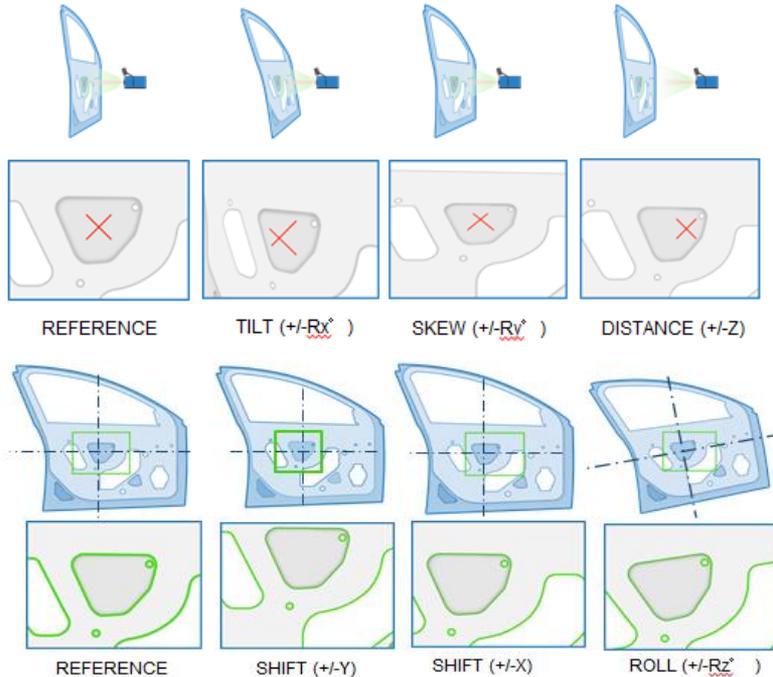
**BELT PICKING**

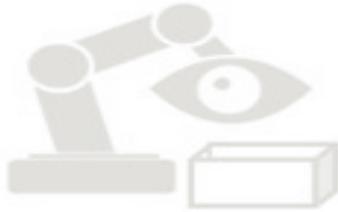


## COS' È IL DE-RACKING?

Sistema che consente la presa di particolari disposti su rastrelliere.

L'immagine viene acquisita in 2D ma, in funzione di forma e dimensione di un pattern definito, il sistema è in grado di calcolare il piano di inclinazione e la distanza di posizionamento degli oggetti rispetto alla camera, favorendo una guida robot precisa e affidabile.

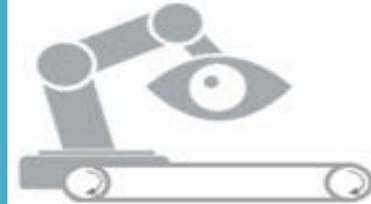
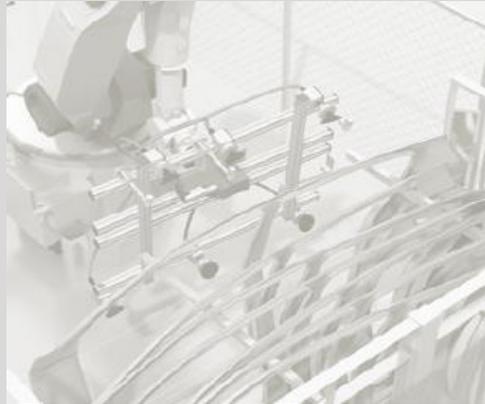




**BIN/TOTE PICKING**



**DE-RACKING**



**BELT PICKING**



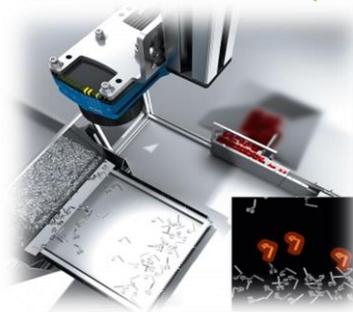


## COS' È IL BELT PICKING?

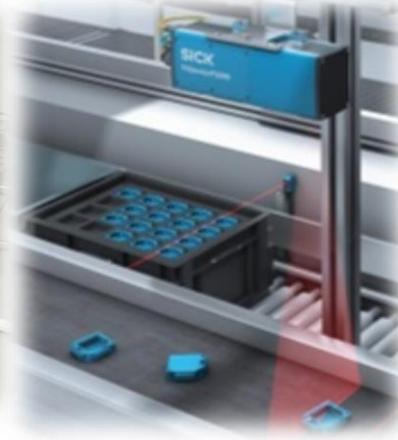
Sistema che effettua la presa di oggetti (anche di diversa natura) movimentati attraverso nastro trasportatore.

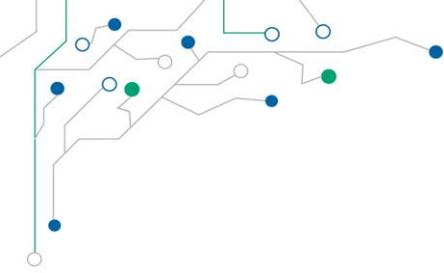


## Visione 2D



## Visione 3D – Triangolazione laser





Grazie per l'attenzione