Disruptive Technologies for the WTO WCO conference

Autodetection data/goods

Norbert Kouwenhoven

Strategy and Innovation, Customs Administration of the Netherlands

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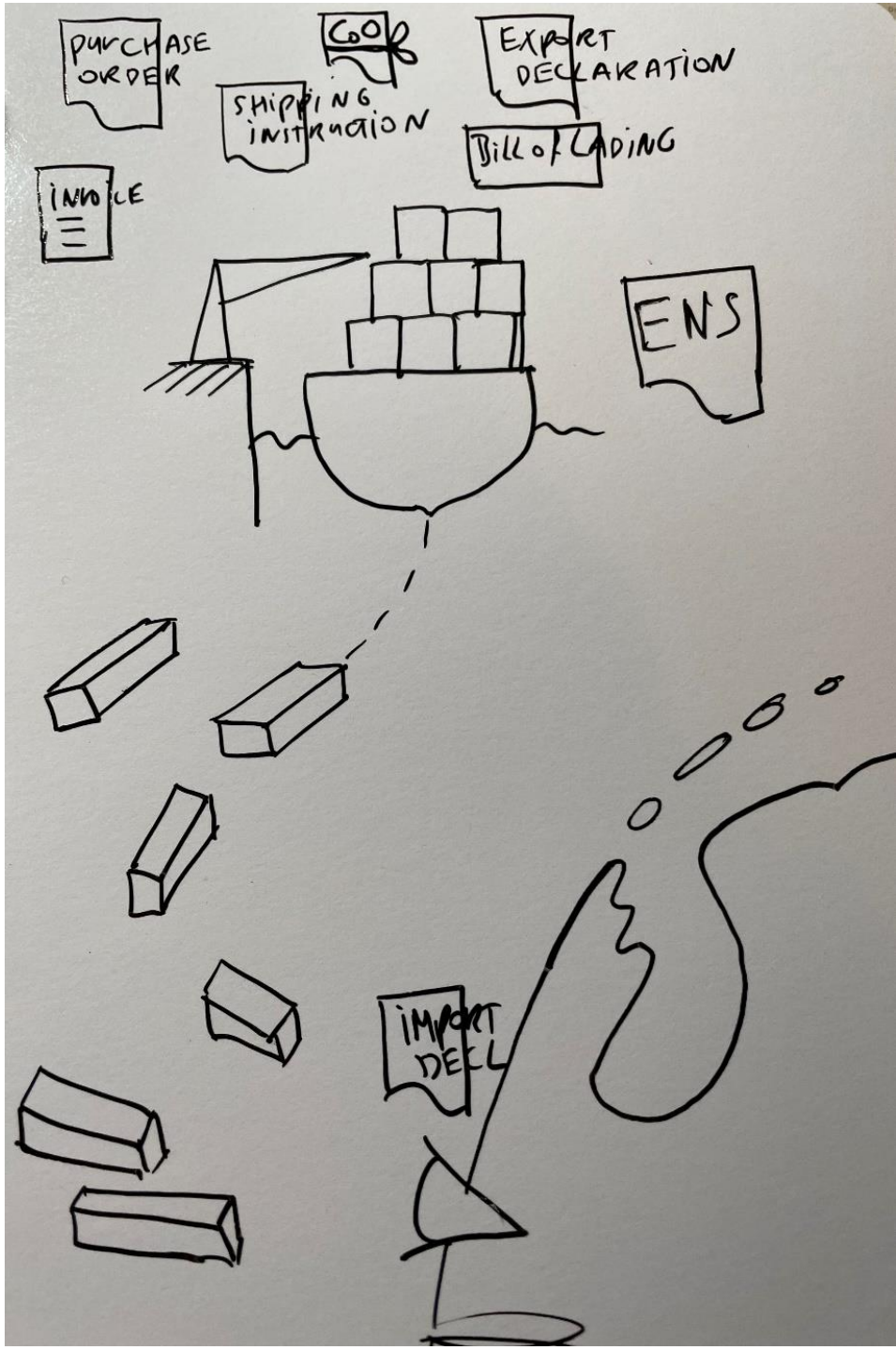
Our Supervision Dream

- Predeparture/early insights: use ENS, and BoL, Shipping instructions, eCMR, CoO, ..
- Insights in stream patterns
- Post departure insights
- Inspections/interventions pre-, on- and post arrival
- Automated collection of data
- Automated risk analysis



Data science, risk profiles and AI models

Aeras in which Data Science may help to improve risk selection:

1. Derive risk profiles from historical data
2. Develop models to filter false-positive profile hits
3. Develop predictive risk models
    - classification
    - detection
    - anomalies
4. Develop risk profiles and AI models using external data

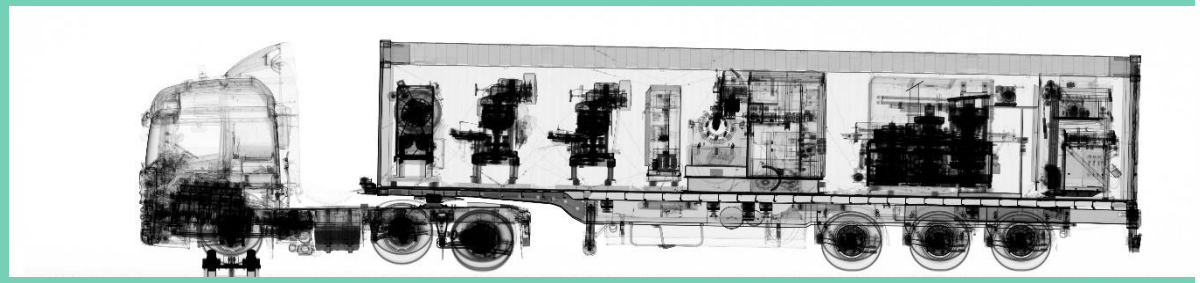
Data

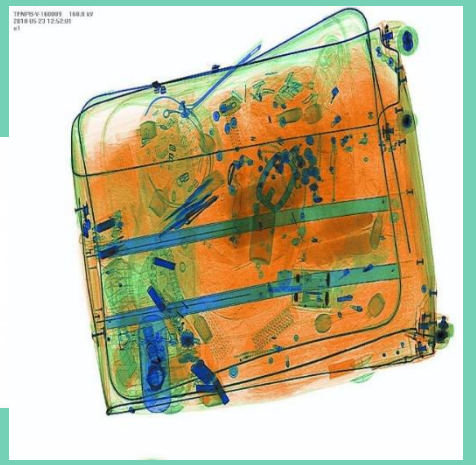
AangID	Cat_regeling	AangSymb	AangTyp	AanvDat	LVO	GdnCod	Brutogewicht	Nettogewicht	Statwrd
22NLL1T9YSA01OWD52_0001	H	IM	A	10APR2022	EU	640351990000000000	0.500	0.450	487.00
22NLL4JZI4AAIPWD54_0004	H	IM	A	18JUN2022	CN	620423800000000000	0.671	0.671	31.00
22NLL4CQLOAA3MWD54_0007	H	IM	A	14JUN2022	CN	620432909000000000	0.183	0.183	6.00
22NLL5M1OMAFSVWD50_0001	H	IM	Y	14JUL2022	CN	940549909000000000	0.300	0.270	106.00
22NLL5WBETAYEGWD59_0009	H	IM	A	22JUL2022	CN	621210900000000000	0.130	0.130	11.00
22NLL46NLZAEQVWD56_0001	H	IM	A	09JUN2022	IN	620630009000000000	0.090	0.090	29.00
22NLL0TK9HAAJ8WD54_0003	H	IM	Y	16MAR2022	EU	611420000000000000	0.134	0.128	9.00

Structured data (i.e. tabular data)

- Internal data (e.g. declarations, inspection results, etc.)
- External data (e.g. TradeLens, etc.)

Unstructured data (i.e. images and documents)





PDF

Projects

1. Derive risk profiles from historical data

   PROFILE, filter false-positive profile hits

2 . Develop predictive risk models

   classification – Probability of PILLS presence (Xrays of postal packages)

   detection – Drugs packages in CONTAINERS (Xray scans)

   anomalies - tbd

4. Develop risk profiles and AI models using external data –

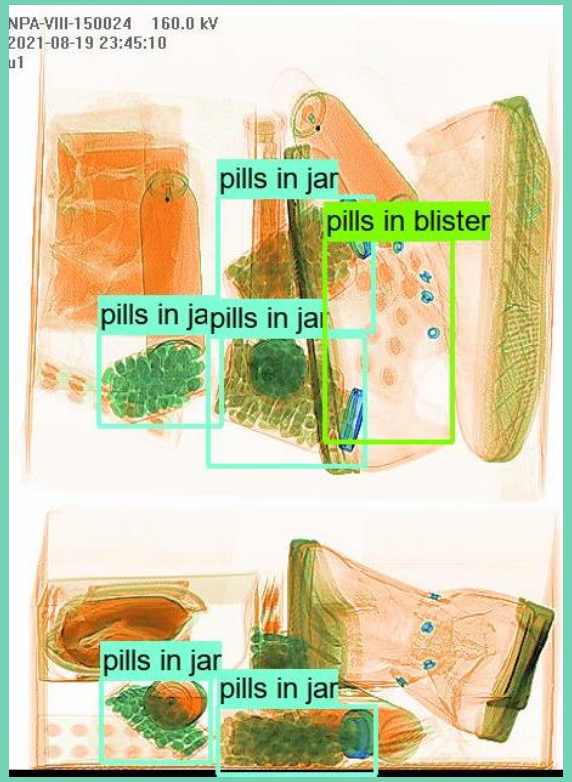
   Connect to PRIVATE DATA

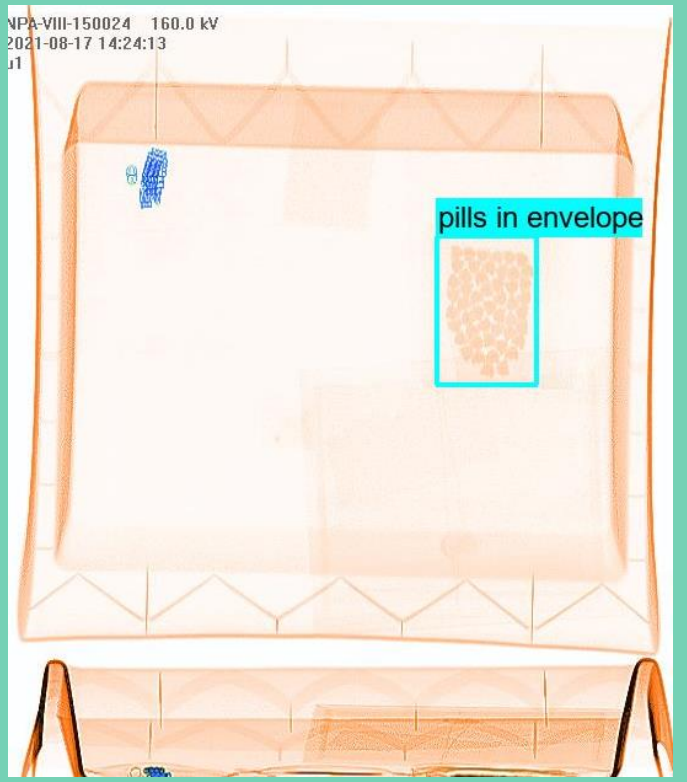
Computer vision applied to X-ray images Postal Packages

Two applications:

1. Classify cargo / goods
2. Detect Safety & Security risks

Pills in postal items →





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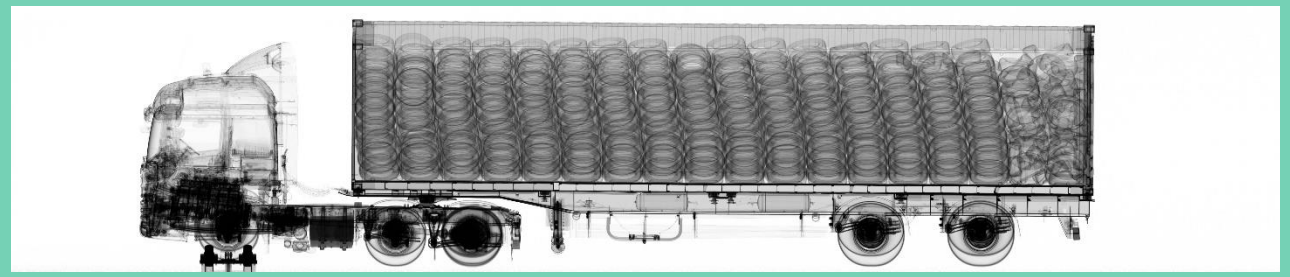

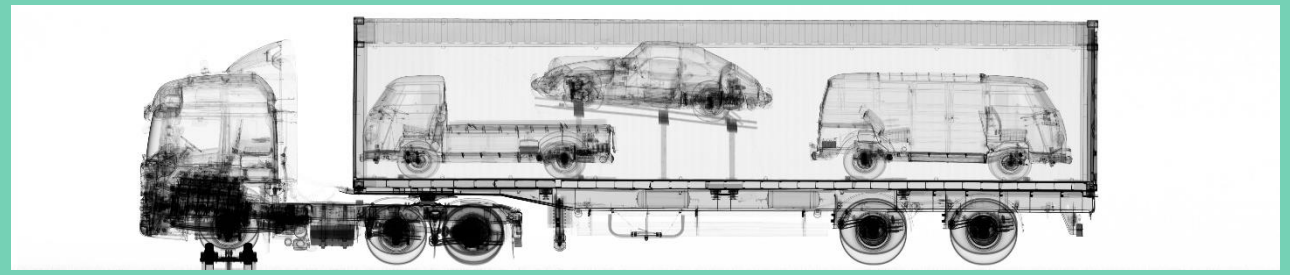

What is in the container (and does it match the declaration)?

Computer vision at DCA – Next steps

- Assemble a database with (annotated!) images
- Establish a suitable IT environment

  (for storage, training, deployment)
- Adjust workflow