

ControlExpert + NVIDIA

Insurance Claims in the Age of AI

ControlExpert



AI-Powered
Insurance Claim

- A global leader in claims management and insurance technology solutions
- Redefining the rules of how insurance operates
- Accelerated Computing
- Optimized, End-to-End AI Software Platform
- Security, Reliability, Enterprise Support
- Accelerated Claim Process
- Fraud Detection & Real-Time Insights
- Enhanced Customer Experience

AN AI REVOLUTION IN INSURANCE CLAIM PROCESS

ANDREAS DECKER & DR. SEBASTIAN SCHOENEN
CONTROLEXPERT GMBH
NVIDIA GTC 2024, SAN JOSE

MARCH 19TH 2024



ControlExpert

NVIDIA

2014



**„THE LAST MOTOR DAMAGE I REPORTED
TOOK ME MONTHS TO RESOLVE“**

**CAR DRIVERS AROUND THE WORLD
WILL HAVE THEIR CLAIMS
FAIRLY SETTLED
ON THE VERY SAME DAY.**

VISION

CONTROLEXPERT IN NUMBERS

THE TECHNOLOGY-BASED CLAIMS SERVICE PROVIDER



>200
Customers
worldwide



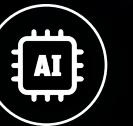
>400k
Images processed daily



>20 MIO.
Claims processed per year



~450
Automotive
experts



>150
Integrated
AI-Models



~450
IT & Tech
developer

CONTROLEXPERT INTERNATIONAL

OVER
30
LOCATIONS

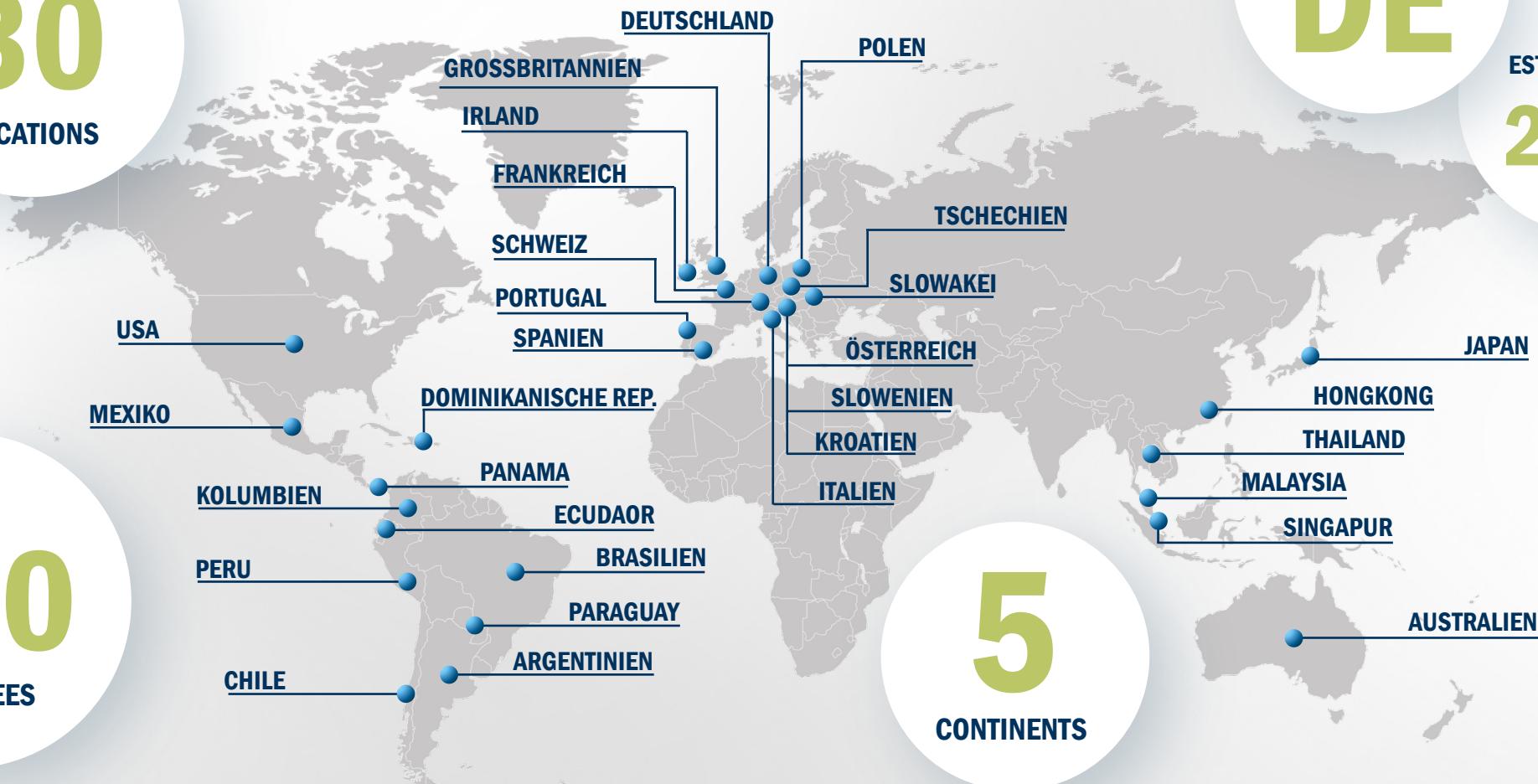
OVER
900
EMPLOYEES

Headquarter

DE

BUSINESS
ESTABLISHED IN
2002

5
CONTINENTS



EXCERPT FROM THE BROAD AND RAPIDLY GROWING CUSTOMER BASE



**INSURANCE
CARRIERS**



**CAR
DEALERS**



**LEASING
COMPANIES**



HDI



Mercedes-Benz



中国平安
PINGAN



EXAMPLES

IT TAKES TWO

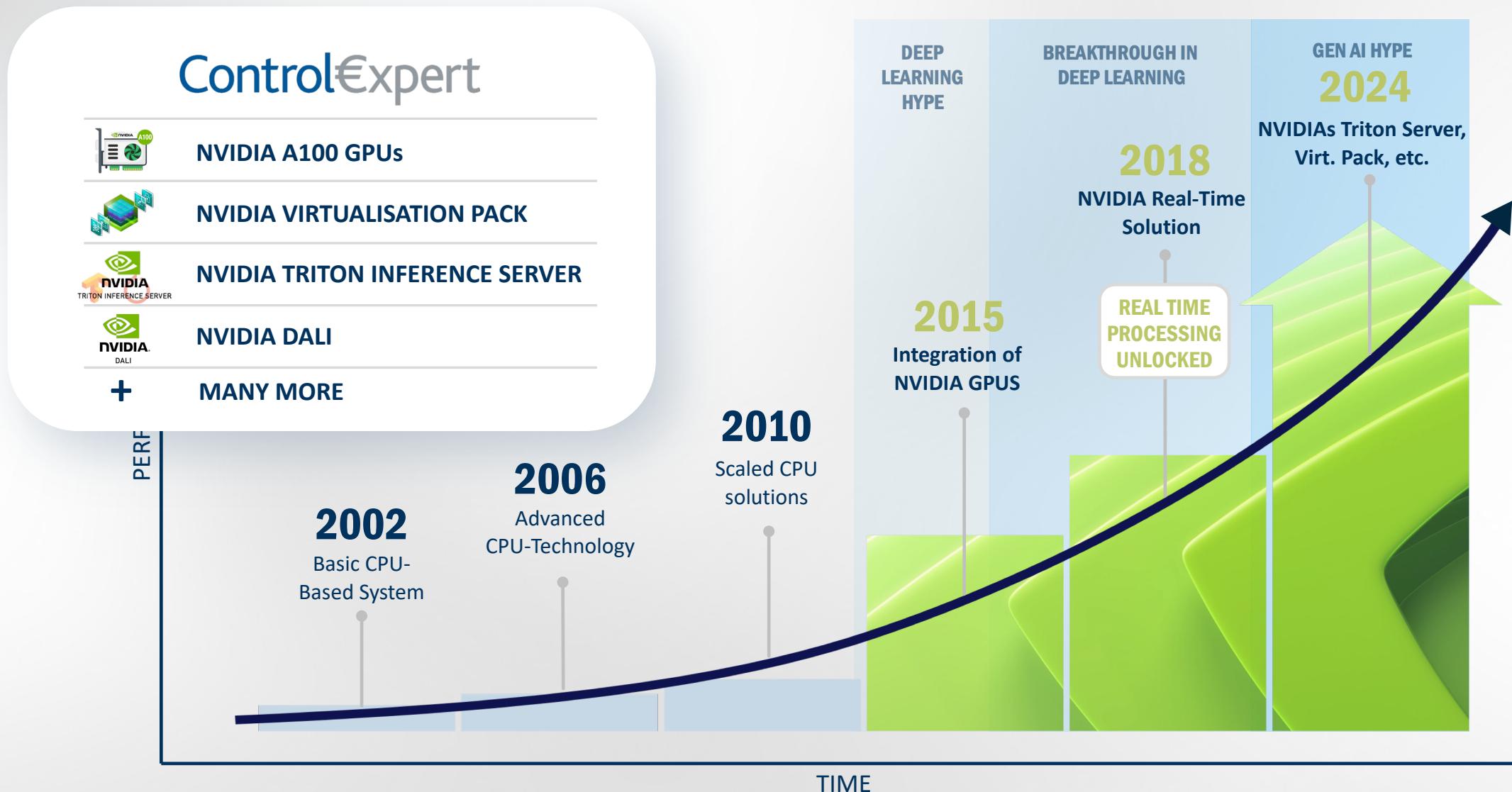
IT TAKES TWO

IT TAKES TWO



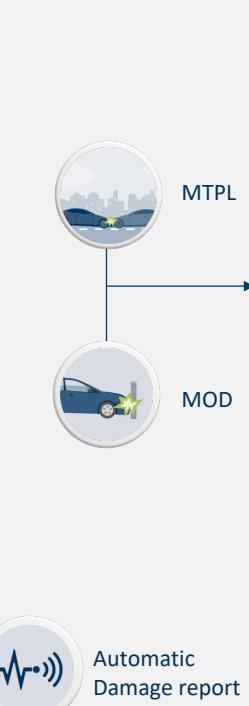
**& CONTROLEXPERT
& NVIDIA**

ACCELERATING CLAIMS MANAGEMENT TO REAL-TIME: THE NVIDIA BREAKTHROUGH



THE FUTURE OF CLAIMS MANAGEMENT: THE END-2-END JOURNEY WITH GEN AI

DAMAGE EVENT



LOSS NOTIFICATION

- Online claim reporting/
Direct integration into
the claims system
- Damage notification
by telephone
- Damage report
In the agency
- Repair shop

Digitization/
Data entry

CLAIMS STEERING

GENERATIVE AI INCLUDED
CLAIMS ADVISOR
AI-based loss control
(incl. Image Fraud Prevention)

- Cash settlement
- Workshop recommendation
- Total loss
- Video calculation
- Photo calculation
- Further follow-up processes
- Document verification (IC, EC, GC)*
incl. fraud detection

CLAIMS SETTLEMENT

- Cash settlement
- Scheduling repairs
- Connecting buyers
- Scheduling and realization of the video calculation
- Creation and sending photo calculation

CASE CLOSURE/ FOLLOW UP

- Car repaired
- Amount paid
- Satisfied customer

*Legend: IC = Invoice Check , GC = Glass Invoice Check, EC = Cost estimate/expertise review

A SEAMLESS JOURNEY: THE DIRECT PAYOUT SOLUTION



*Legend: IC = Invoice Check , GC = Glass Invoice Check, EC = Cost estimate/expertise review

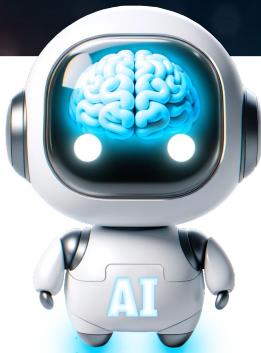
A large hourglass with blue sand falling from the top bulb into the bottom bulb, symbolizing time passing.

CLAIM CYCLE TIME:
8-16
WEEKS (ø)

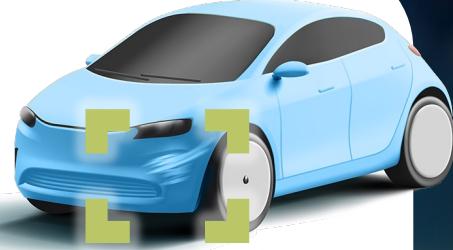
A blurred image of a clock face, suggesting speed or rapid processing.

**CLAIM PROCESSING TIME
WITH END-2-END-SOLUTION:**
REAL TIME

THE CENTRAL CATALYSTS FOR OUR END-2-END PROCESS



LARGE
LANGUAGE
MODELS



ADVANCED
IMAGE
RECOGNITION



AI-BASED
FRAUD
PREVENTION

DEEP DIVE

ENHANCING MOTOR CLAIM MANAGEMENT BY USING LARGE LANGUAGE MODELS

PROBLEM

Insurance companies deal with millions of non-standardized and diverse documents every day!



SOLUTION: LARGE LANGUAGE MODELS

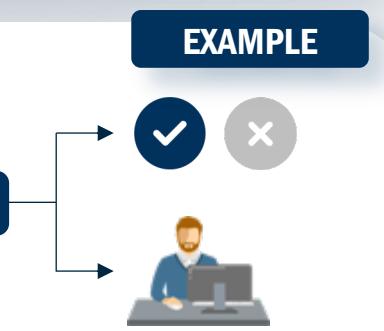


Claimer sends texts and documents

Important information are analyzed by LLM

Follow ups are executed

LLM
W0L000051T2123456
ME-CE 100; 40764
105PS, 85000 km



ADVANTAGES



Automated claims processing



Real-time query resolution



Efficiency improvement & cost reduction

ENHANCING MOTOR CLAIM MANAGEMENT BY USING LARGE LANGUAGE MODELS

EXAMPLE

Confirmation of assumption of repair costs including payment instruction and assignment

Rechnungsnummer	10100000000000000000000000000000	Amtliches Konsortien	BRD [EUR]
UPE-Drahtseil Auf & Abseil		10,0 %	38,01
Reparaturkosten netto			114,00 EUR
+ 1,00 % Netto			128,11 EUR
Reparaturkosten brutto			802,49 EUR
Selbstabstimmung			150,00 EUR
(Wert der Selbstabstimmungsbemerkung)			120,00 EUR
Anteil Auftraggeber			278,11 EUR
Anteil Versicherung			524,35 EUR

The invoicing party Autohaus Kittel GmbH confirms: We have received the original signed payment instruction from the customer that you can pay with debt-discharging effect. We assure you that we will keep both the original invoice and the original payment instruction in accordance with the statutory provisions and retention periods and will make them available if required.

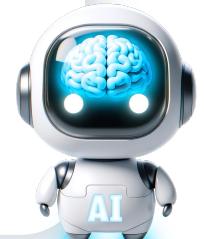


INSURANCE EXPERT:

To whom must the money be paid?

ANSWER:

The money must be paid to the bodyshop.



SOURCE:

See enclosed.

LARGE LANGUAGE MODELS GAME CHANGER FOR MOTOR CLAIM EFFICIENCY

97 %

PROCESSING TEXT
ACCURACY



Better than non fine tuned LLMs (80%)

Ø 3 Min

REDUCTION OF
HANDLING TIME FOR
INSURANCE EXPERTS
PER CLAIM

< 3 Sec

AVERAGE
PROCESSING TIME

REVOLUTIONIZING MOTOR CLAIMS MANAGEMENT WITH IMAGE RECOGNITION TECHNOLOGY



PROBLEM

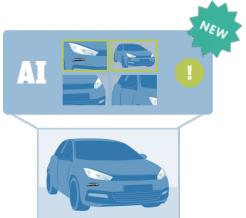
Every damage needs to be manually reviewed partly even by on-site visits...



SOLUTION: IMAGE RECOGNITION



End customer takes pictures

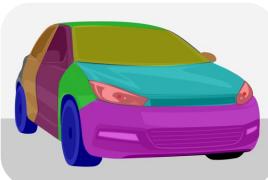


AI analyzes and evaluates damage

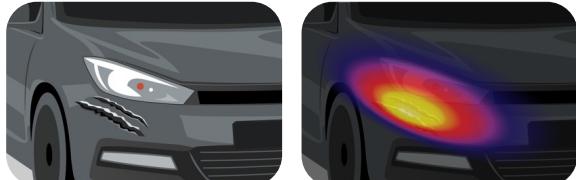


Follow ups are executed

CAR PART SEGMENTATION



DAMAGE SEGMENTATION



EXAMPLE



Faster claims processing



Process standardization

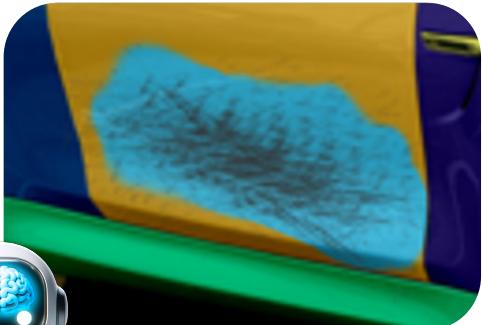


CO2 footprint reduction

REVOLUTIONIZING MOTOR CLAIMS MANAGEMENT WITH IMAGE RECOGNITION TECHNOLOGY



SCRATCHES ON THE
FRONT RIGHT DOOR
DETECTED



EXAMPLE



NO DAMAGE
DETECTED



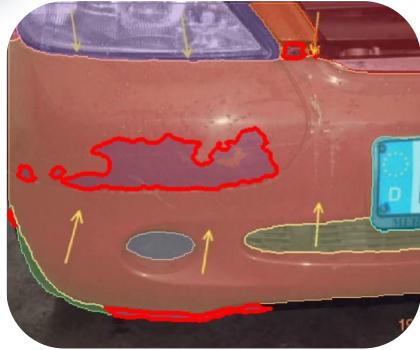
NO DAMAGE
DETECTED



UNCERTAINTY QUANTIFICATION AS ENABLER FOR AUTOMATIC COST CALCULATIONS



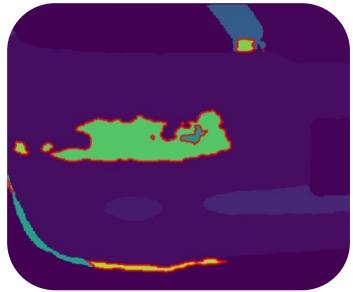
1



MODEL PREDICTION

Segments of failed car part prediction, e.g. rearbumper instead of frontbumper

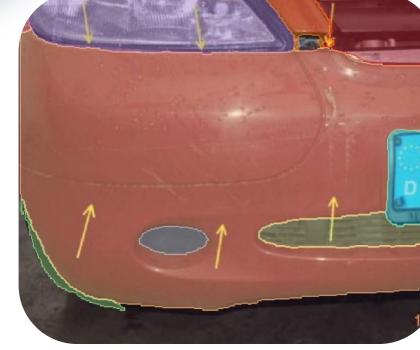
2



MODEL UNCERTAINTIES

Correlation with wrong predictions

3



IMPROVED MODEL PREDICTION

Most wrong predictions are removed and corrected

ELEVATING CLAIMS THROUGHPUT IN REAL-TIME PROCESS WITH IMAGE RECOGNITION



71

VEHICLE PARTS CAN
BE ANALYZED



Down to parking sensors,
reflectors and more!



20 %

FULLY AUTOMATED
COST CALCULATIONS



< 1 sec

AVERAGE
PROCESSING TIME

FRAUD OR NOT?



Manipulated image



Original image

BEHIND THE PIXELS: PIONEERING A STATE-OF-THE-ART APPROACH TO FRAUD DETECTION WITH 5 KEY MODULES



PROBLEM

TODAY



5 BN. €*

DAMAGE DUE TO
INSURANCE FRAUD

TOMORROW



X BN. €*



DAMAGE DUE TO
INSURANCE FRAUD



SOLUTION

GenAI INCLUDED



Fingerprint



Metadata
analysis



AI-based image
manipulation



Damage pattern
analysis



Plausibility
vehicle data

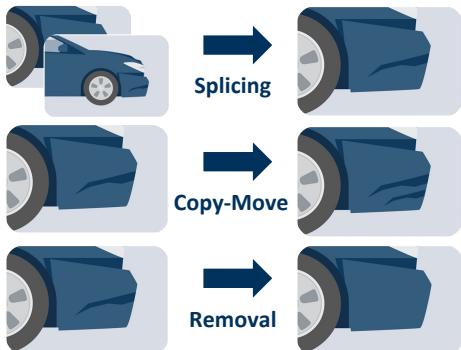
**AI-BASED FRAUD
PREVENTION**

* On the German market

THE TECHNOLOGY BEHIND IT...

1

MANIPULATION METHODS



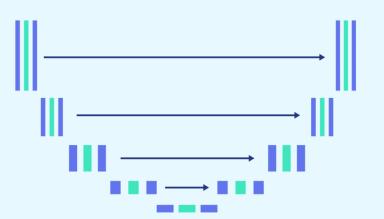
2

DETECTION APPROACH



3

AI SOLUTION FOR AUTOMATIC INSPECTION



Model architecture:
U-Net for segmentation + classification

Incorporate knowhow from ControlExpert's
internal car-parts segmentation model

Synthetic data generation

89%
MATCHING RATE*

*Intersection over union

BEHIND THE PIXELS: PIONEERING A STATE-OF-THE-ART APPROACH TO FRAUD DETECTION WITH 5 KEY MODULES

95 %

PRESICION ON
MANIPULATED IMAGES
(INCL. GEN AI IMAGES)

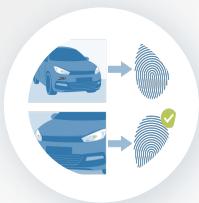
> 80 %

SHARE OF
FLAGGED CLAIMS
WORTH AUDITING

< 3 sec

AVERAGE
PROCESSING TIME

CONFRONTING REALITY: MASTERING FRAUD DETECTION WITH 5 KEY AI-POWERED IMAGE RECOGNITION MODULES



FINGERPRINT

REAL SCENARIO

EXAMPLE



Original



Match

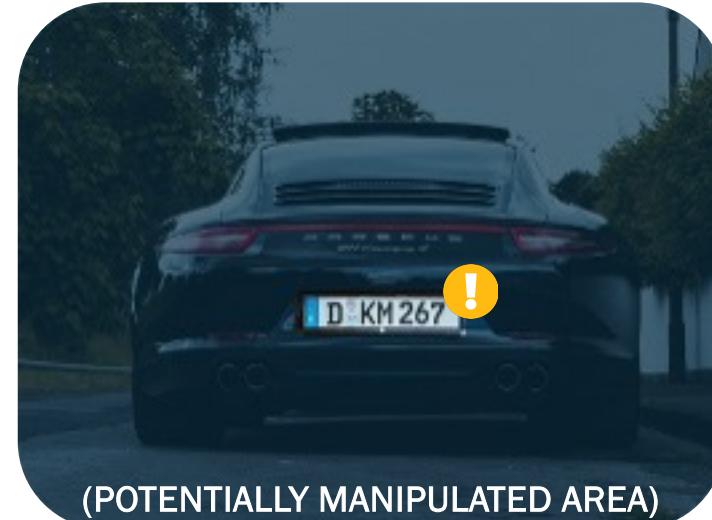
CONFRONTING REALITY: MASTERING FRAUD DETECTION WITH 5 KEY AI-POWERED IMAGE RECOGNITION MODULES



AI-BASED MANIPULATION

REAL SCENARIO

EXAMPLE



CONFRONTING REALITY: MASTERING FRAUD DETECTION WITH 5 KEY AI-POWERED IMAGE RECOGNITION MODULES



METADATA ANALYSIS

REAL SCENARIO

EXAMPLE



Date of damage:
25.02.2022



Photo taken at: **14.02.2022**

2014 WITHOUT CONTROLEXPERT



SLOW

EXPENSIVE

NOT CUSTOMER-CENTERED

2024 WITH CONTROLEXPERT



40 %

CLAIMS SETTLED
< 24H

83 %

ACCEPTED
RECOMMENDATIONS

4,8/5

CUSTOMER
SATISFACTION



ANDREAS DECKER

CTO | Managing Director
Control Expert GmbH



DR. SEBASTIAN SCHOENEN

Director of Innovation & Technology
Control Expert GmbH



www.controlexpert.com/de-en