ZERO G

AMLD 2022

Food Waste, Champagne, and **Artificial Intelligence in Aviation**

Dr. Alexander Motzek, Lead Data Scientist at zeroG – AI in Aviation, a Lufthansa Group Company

Who is ZEROG?

We're here to answer one simple question:

What if we could reimagine the world of aviation through the power of analytics?

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Lufthansa
LSGgroup
ZERO G

Outstanding choice of wines!

LSGgroup

Outstanding choice of wines

outstand choic wine

Type of FAC 99%

Compliment

Severity 99%

minor

Functional area 42%

H - Last Mile Transport

Department 49%

Transport

Object category / Service 23%

Beverages

Cause

Detailed Cause

Affected product 46%

Wine

This champagne is not cooled properly

LSGgroup

This champagne is not cooled properly

champagn neg_cool neg_proper

Type of FAC 100%

Complaint

Severity 100%

minor

Functional area 33%

G - Outbound Dock

Department 80%

Other

Object category / Service 57%

Beverages

Cause 99%

Food Quality - Temperature Deficiency

Detailed Cause 99%

too warm

Affected product 47%

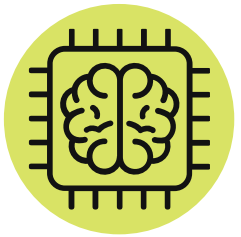
Champagne

Natural Language Processing

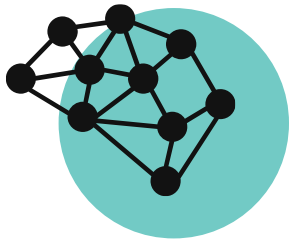
Real-time

Route-specific catering optimization

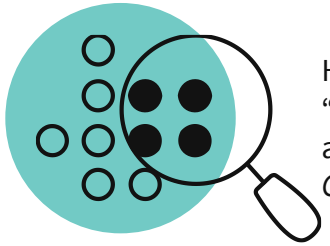
Product enhancements



“All beverages hadn’t been cooled correctly. As the cooler had not been working, dry ice should have been used to keep beverages cold.“
Complaint, outbound dock, trolley, temperature, too warm



AF459 CDG-GRU
“The passengers really liked Amuse Bouche Guacamole. It was very praised.”
Compliment, cold food production, starter



Hot Food Production/Poultry:
“Presentation of chicken did not look very good, very messy and a lot of sauce spilled.”
Complaint, hot food production, food quality, portion defect

4 years NLP research

2018:

40.000 data points
heavy preprocessing
translated

2022:

0 labeled data points
no preprocessing
multilingual
similar accuracy

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El champan ha estado tibia. No hay hielo.

Sentiment
Beschwerde 59%

Thema
Getränke 35%

Kategorie
Nonfoodbereich bord 65%

Oberbegriff
Service am boden 8%

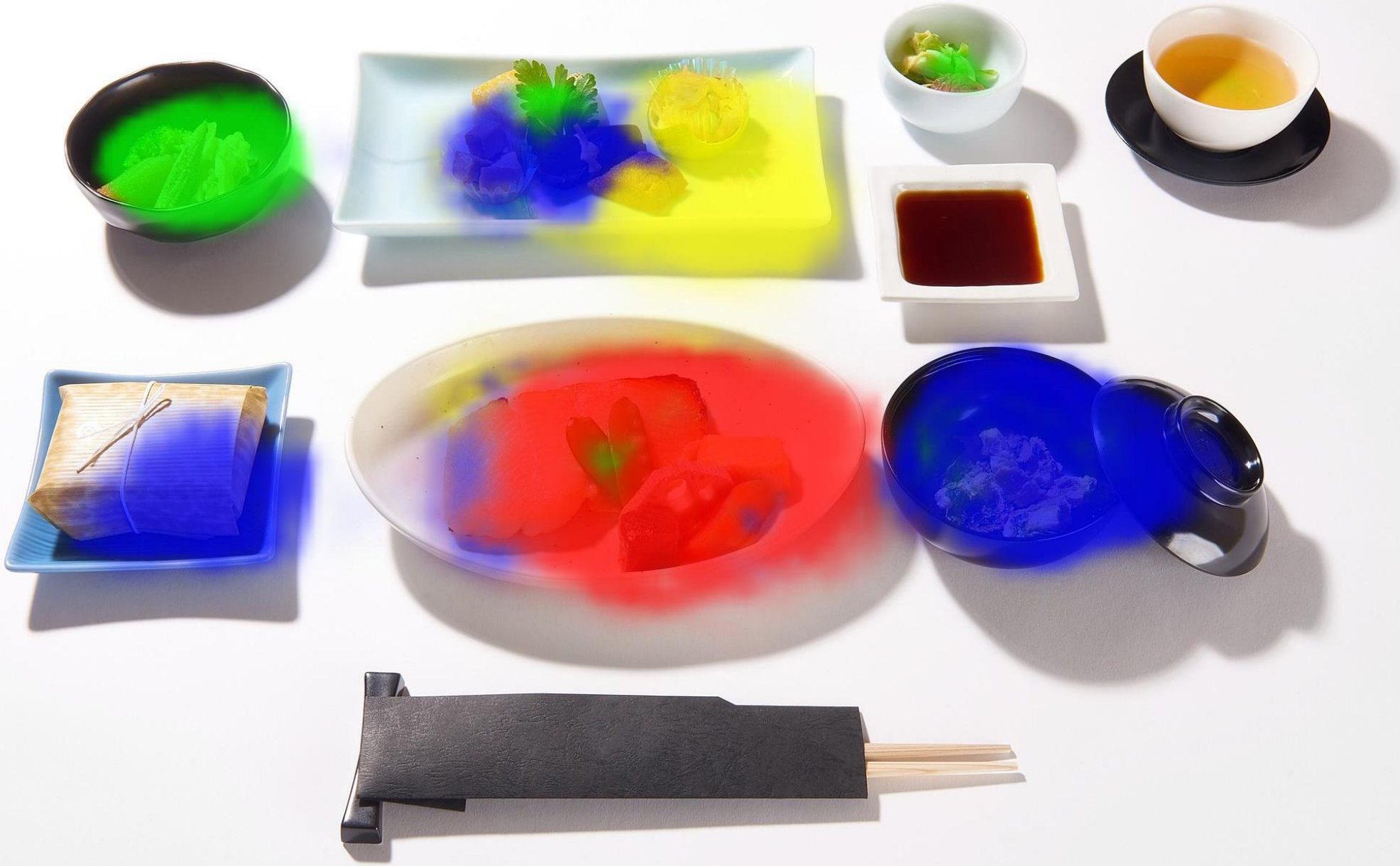
Begriff
Champagner 20%

Merkmalskategorie
Besonderes vorkommnis 49%

Merkmalsthema
Inhalt/stauort 37%

Merkmal
Temperatur 37%

2B

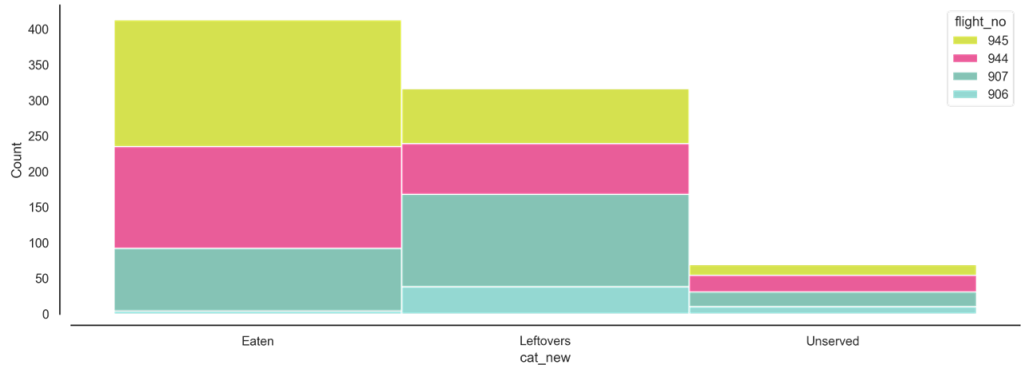


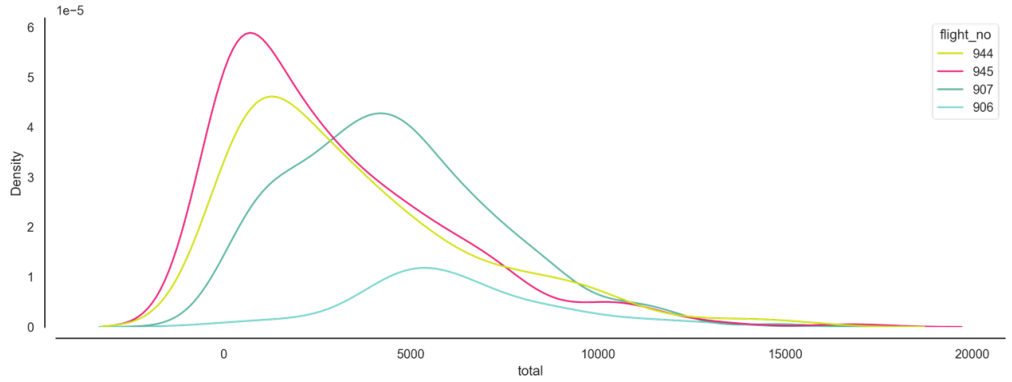
DeepCatering Insights

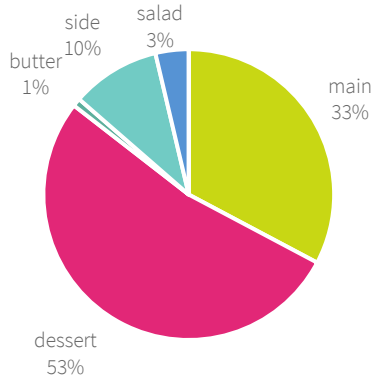
Food Waste Reduction

Weight and Fuel Reduction

Portion Adjustments







AI within the Lufthansa Group

Deep learning

Machine learning

Revenue management

Natural Language Processing

Autonomous decision support

Forecasting

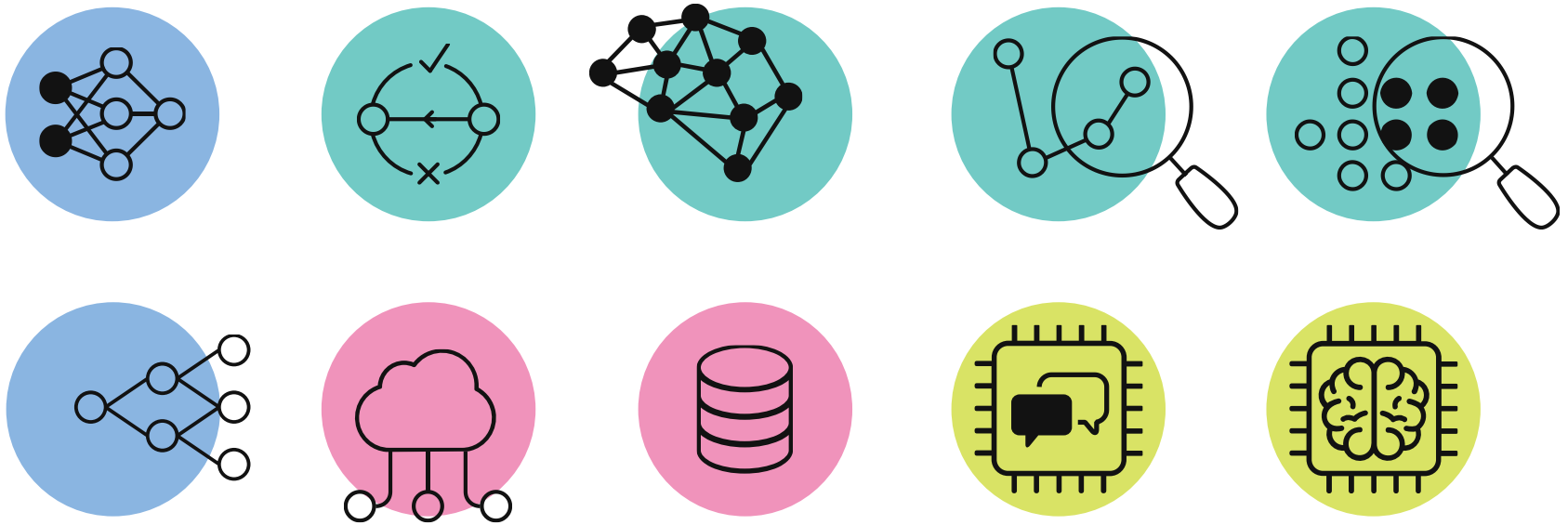
Reinforcement learning

Pattern recognition (Computer vision)

Predictive analytics & maintenance

Procurement & cash flow analytics

...



Confidentiality: Public | Dr. Alexander Motzek

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Thank you!

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We're hiring

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