WE LOVE FORGING POWERFUL TOOLS WITH DATA



SERVICE GMBH



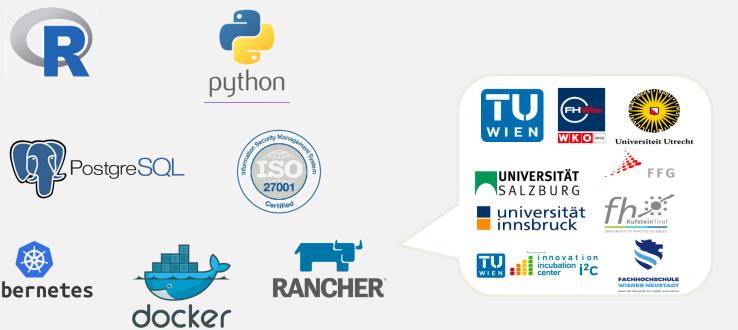
Data + Science + Service = ImmAzing® Competence and enthusiasm

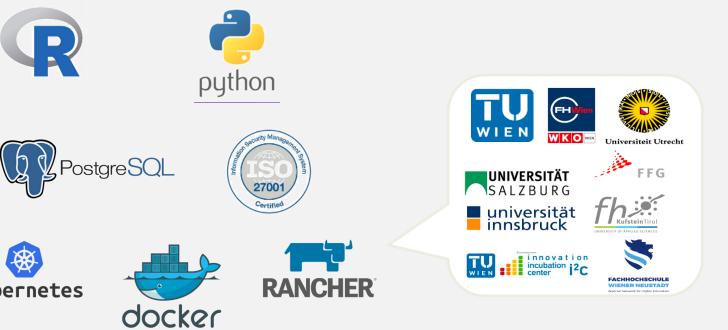
DataScience Service is specialiced in automated real estate valuation for banks. Market leader in Austria (incl. the Austrian National Bank).

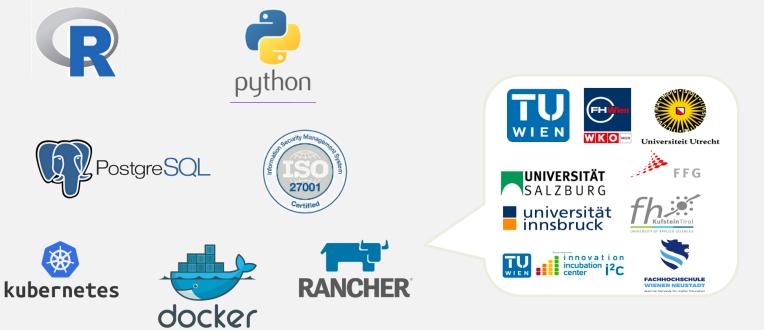
We cover the entire range of services from individual valuation and revaluation to portfolio analyzes and ESG.

ISO certified (ISO/IEC 27001, international standard to manage information security).

Winner of the startup-competition in the HIGH TECH category.









More than 50 employees from 15 countries – 7 PhDs, 2 Profs









Data + Science + Service = ImmAzing®

Professional Automated Real Estate Valuation

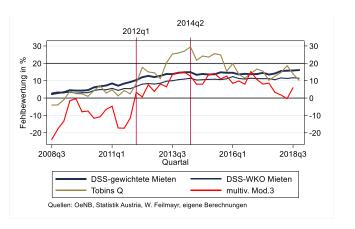


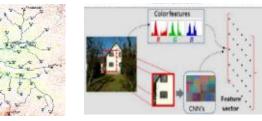
EXZELLENT LIFE TIME SERVICE

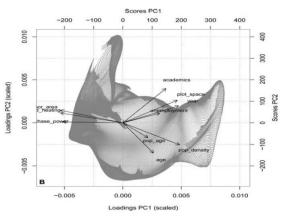




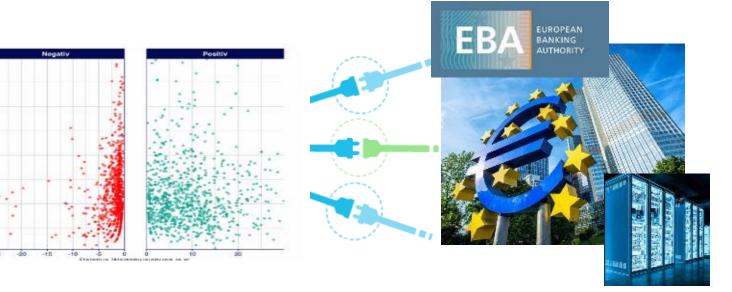
SCIENTIFIC METHODS



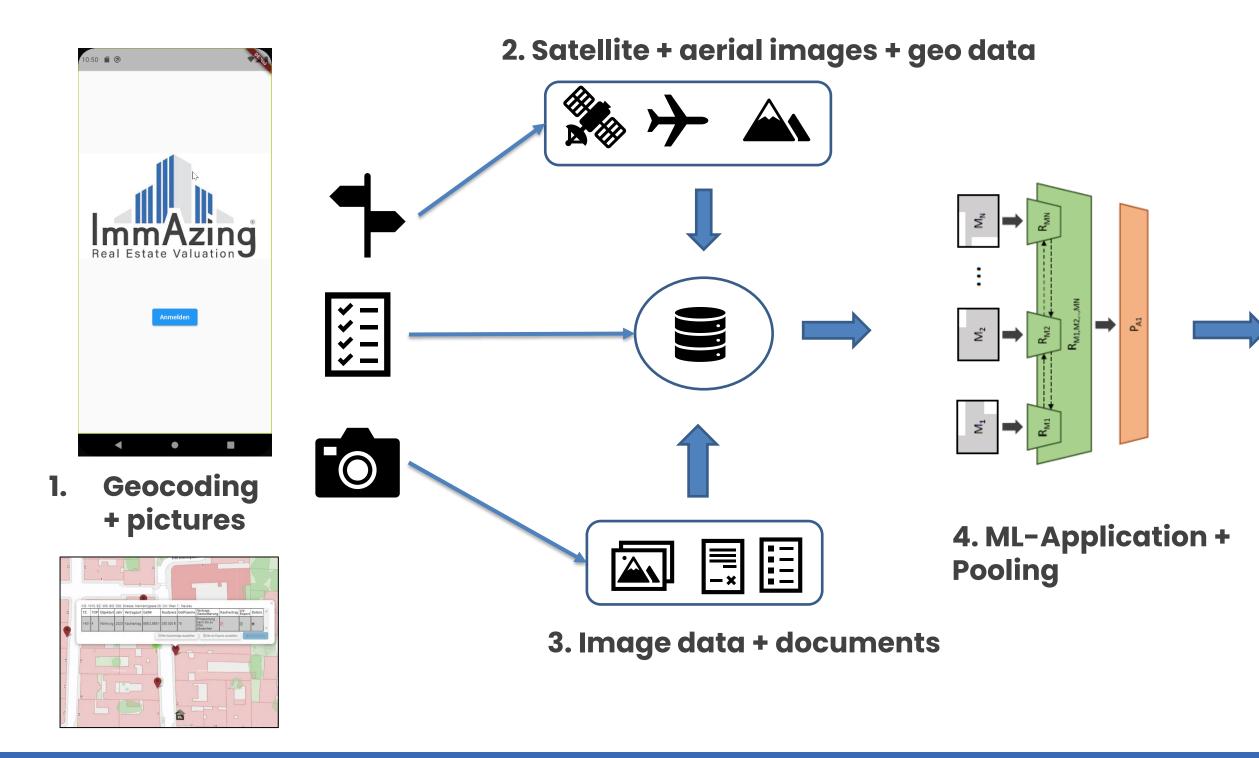


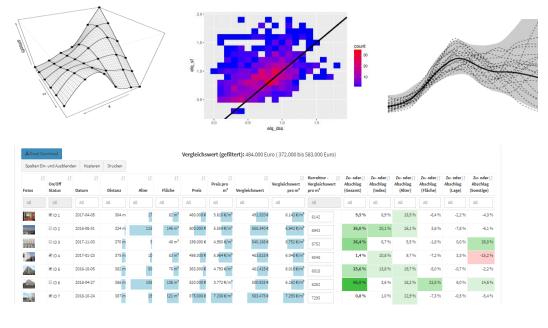






SimmAzing® AUTOCOMPLETE Vision: "One stop shop" for automated valuation

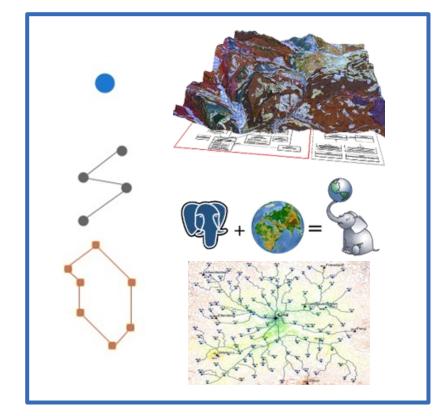


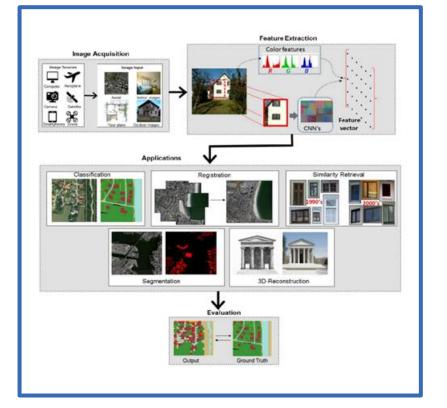


5. Model evaluation in ImmAzing®



ImmAzing® AUTOCOMPLETE Using ML for information extraction





GEOSPATIAL AND SATELLITE DATA

DEEP LEARNING



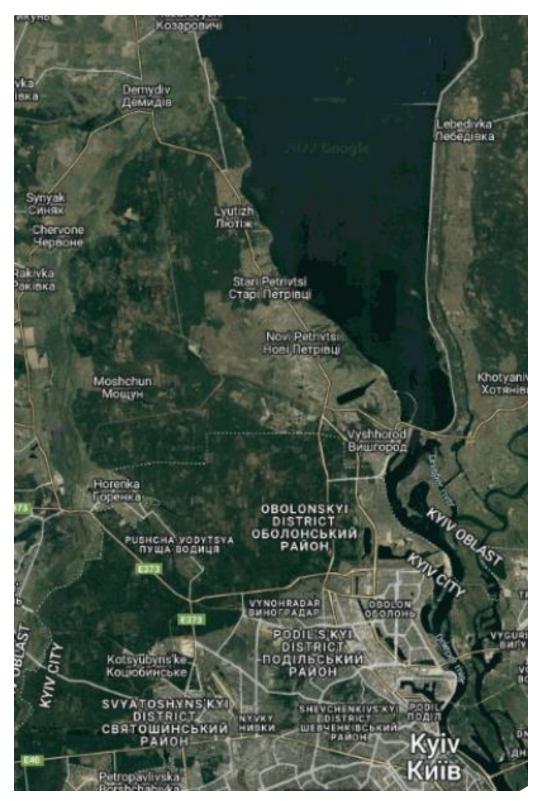
NATURAL LANGUAGE PROCESSING



Earth Observation Services Built-up Monitoring: Flood Risk Monitoring Marchfeld 2020 & Kiew 2022



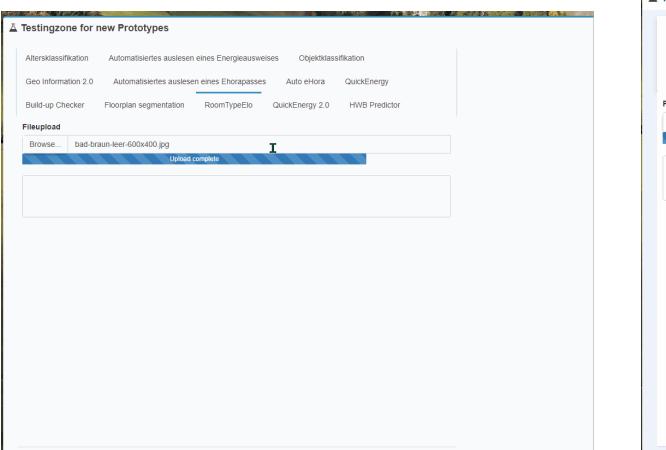






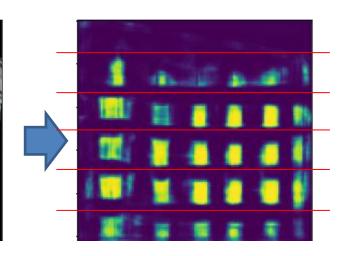
ImmAzing® Image-API Application of deep neural networks for image classification





A Testingzone for new Prototypes

Altersklassif	ikation	Automatisiertes auslesen	eines Energieauswei	ses Objektklass	sifikation
Geo Informa	ation 2.0	Automatisiertes auslese	n eines Ehorapasses	Auto eHora	QuickEnergy
Build-up Ch	ecker	Floorplan segmentation	RoomTypeElo	QuickEnergy 2.0	HWB Predictor
Fileupload					
Browse		mentputz-mit-Rieselwurf-und			
	Kalkzeme	entputz-mit-Rieselwurf-und-positive	en-Faschen_haus_R_wei	kbau.jpg	



▲ Testingzone for new Prototypes

Automatisie	rtes ausles	en eines Ehorap	asses	Auto eHor	a Quic	kEner <mark>gy</mark>	Build-up Check	er
Fileupload								
Browse	No file s	selected			.			
				-	h5 -	+ Kopierer	١	

DATA/SCIENCE

ImmAzing® Image-API Example: predicting energy efficiency

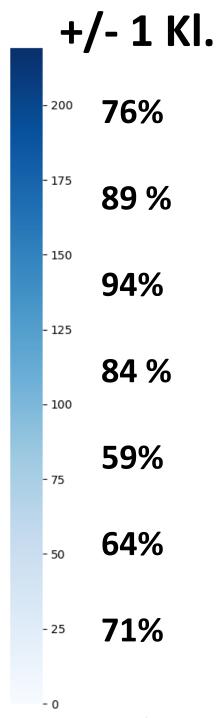
Confusion Matrix Testset					_+/	+/-1KI. Confusion Matrix Testset											
A -	6 (75.0%)	7 (3.95%)	4 (1.13%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	- 200	75%	A -	6 (35.29%)	7 (41.18%)	4 (23.53%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
В-	0 (0.0%)	122 (68.93%)	17 (4.79%)	11 (6.21%)	1 (1.1%)	5 (6.85%)	1 (0.69%)	- 175	85%	В-	0 (0.0%)	122 (77.71%)	17 (10.83%)	11 (7.01%)	1 (0.64%)	5 (3.18%)	1 (0.64%)
C -	2 (25.0%)	21 (11.86%)	219 (61.69%)	16 (9.04%)	6 (6.59%)	5 (6.85%)	6 (4.14%)	- 150	80%	- C	2 (0.73%)	21 (7.64%)	219 (79.64%)	16 (5.82%)	6 (2.18%)	5 (1.82%)	6 (2.18%)
Actual HWB Category D	0 (0.0%)	10 (5.65%)	47 (13.24%)	107 (60.45%)	7 (7.69%)	6 (8.22%)	16 (11.03%)	- 125 - 100	77%	l HWB Category D	0 (0.0%)	10 (5.18%)	47 (24.35%)	107 (55.44%)	7 (3.63%)	6 (3.11%)	16 (8.29%)
- Actua	0 (0.0%)	9 (5.08%)	35 (9.86%)	13 (7.34%)	65 (71.43%)	9 (12.33%)	16 (11.03%)	- 75	87 %	- Actua	0 (0.0%)	9 (6.12%)	35 (23.81%)	13 (8.84%)	65 (44.22%)	9 (6.12%)	16 (10.88%)
F-	0 (0.0%)	4 (2.26%)	15 (4.23%)	18 (10.17%)	6 (6.59%)	39 (53.42%)	20 (13.79%)	- 50	77%	F -	0 (0.0%)	4 (3.92%)	15 (14.71%)	18 (17.65%)	6 (5.88%)	39 (38.24%)	20 (19.61%)
G-	0 (0.0%)	4 (2.26%)	18 (5.07%)	12 (6.78%)	6 (6.59%)	9 (12.33%)	86 (59.31%)	- 25	74%	G -	0 (0.0%)	4 (2.96%)	18 (13.33%)	12 (8.89%)	6 (4.44%)	9 (6.67%)	86 (63.7%)
	Å	B	ċ	b	É	ŕ	Ġ	- 0			Å	B	ċ	b ted HWB Cat	Ė	ŕ	Ġ

Predicted HWB Category

Predicted -> Actual

Predicted HWB Category

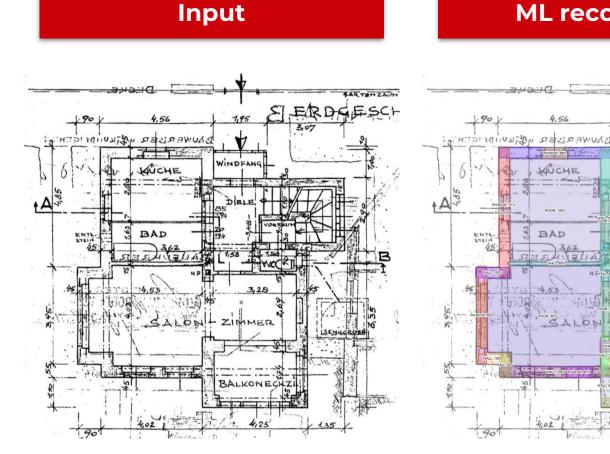
Actual -> Predicted





ImmAzing® Image-API

Floor plan recognition: Better than human?



ML recognition

KUCHE

BAD

4,53

362

SALON ZI

BALKONECKZ

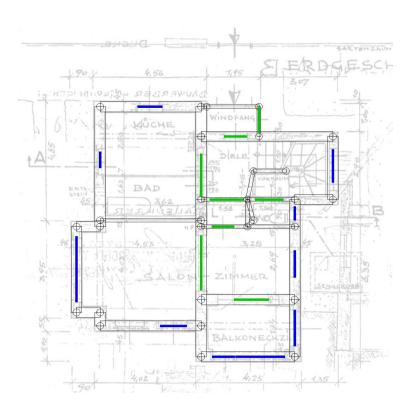
4,25

SAR TEN ZAUN

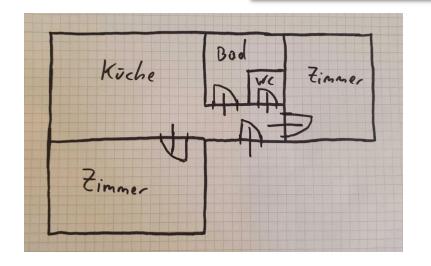
STERDGESCH

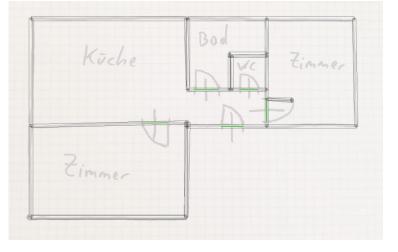
1,35

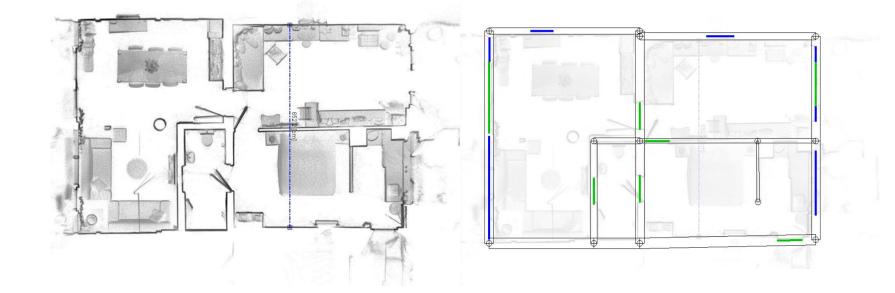
Internal data model



Hand sketches







2D model



Point clouds

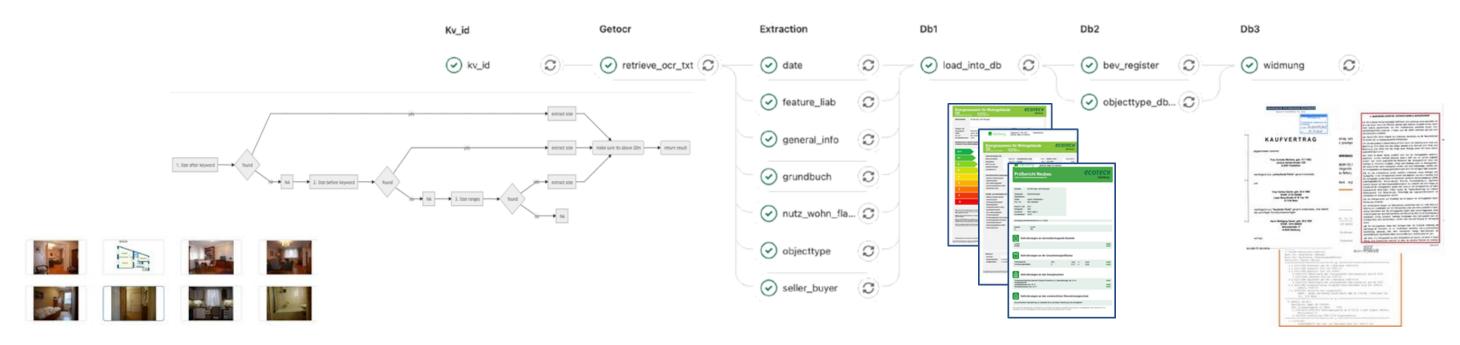
CommAzing® OCR-TM Pipeline Using OCR, Text Mining and LLM for document extraction (contracts, EPCs...)

- Exclusive access
- > 1.100 companies
- > 2,5 Mio objects
- Use of image and text information



JUSTIMMO DIE Makler Software.



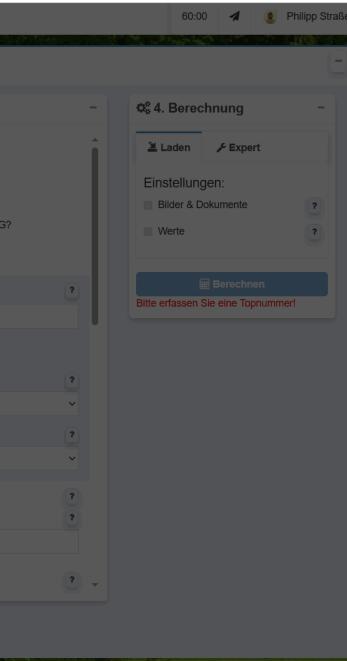


- Direct access to the land register
- > 3 Mio Purchase contracts
- Automatic extraction with manual quality assurance



ImmAzing® Autocomplete Integration of ESG in the sales comparables method

A	Wiki RAPI online ~			_
~ ×		Den Energieausweis hochladen ?		
æ	 ■ Letzte laden Neue anleg Neue anleg Neue anleg Adresse und Karte Adresse KG, EZ Liegenschaft 	Hinweis: Derzeit werden als Dateiformat nur PDFs unterstützt. Fileupload		
	Adiesse (KO, LZ Elegenschalt	Browse No file selected		_
+	Land Straße Nummer Postleitzahl (AT - Mustergasse 1-3a 4499 Muster			
	Vergleichsdaten: Ein Objekt pro Adresse?		Fehler melden Schließen Date	en übernehmen jt im DG
✓✓	+		Detaillierte Flächenerfassung verwende	en 🕇
		Wäidhofen an der Thäya	Baujahr und Zustand des Gebäud	des:
		Grivind Horn	2023	
а П		Schärding Linz Perm der Donau Tollman, Komeuburg Ganseindorf	Baujahr als Zahl	
		dilabruck Stevro Scheibb Lilienfeld Polten Modling der Lettha	Zustand Haus:	Zustand Wohnung:
	the and the	Allein Mattersburg Eisenstadt	Normal erhalten	Normal erhalten
	Bregenz Reutte Kitzbuhel Dernbin Innsbruck Schwaz am See	Sant Johann im Ponnau Leoben Hartberg Oberwart	Jahr der Renovierung:	Art der Renovierung:
	Feldkirch Blodenz Landeck Timst	Temsweg vontsberg Graz Gussing		
	Lienž Spit	tal ang in Kärnten der Glan Wolfsberg Leibnitz	Flächen:	
	Herm	Klagenfurt	Wohnfläche in m ² :	Anzahl Wohnräume:
		Wör thersee	80	
			Sonstige Flächen (Erfassung der m² ist	optional):
		Leaflet (C) DataScience Service GmbH Datenquellen: Basemap.at		





ImmAzing[®] DSS HUB

Framework for machine learning applications "one stop shop"

AVM

- **immazing_mv_pf**: Market value predictions •
- **immazing_fw**: Early warning signals ۲
- **immazing_mp**: Market prediction models

DEEP LEARNING

- floor_plan: Floor plan extraction •
- **roomtype_luxury**: Room type prediction with ELO-Luxury Score
- hwb: HWB Class Prediction, should be used only on Facade Images •
- **roomtype_365**: Roomtype Prediction based on Places365 dataset.
- room_objects: Semantig Segmentation of Objects in Room, Score describes the objects rel. size in the the Image. Semantic Segmentation trained on ADE20K.
- **socialmedia_popularity**: Social Media Popularity, trained on social media posts with images ullet
- image_quality: Neural Network based prediction of Image Quality measuring MEAN and STD.
- construction_year: Neural Network based construction year prediction. Trained on diverse (facade, bathroom, kitchen, ...) real estate images.

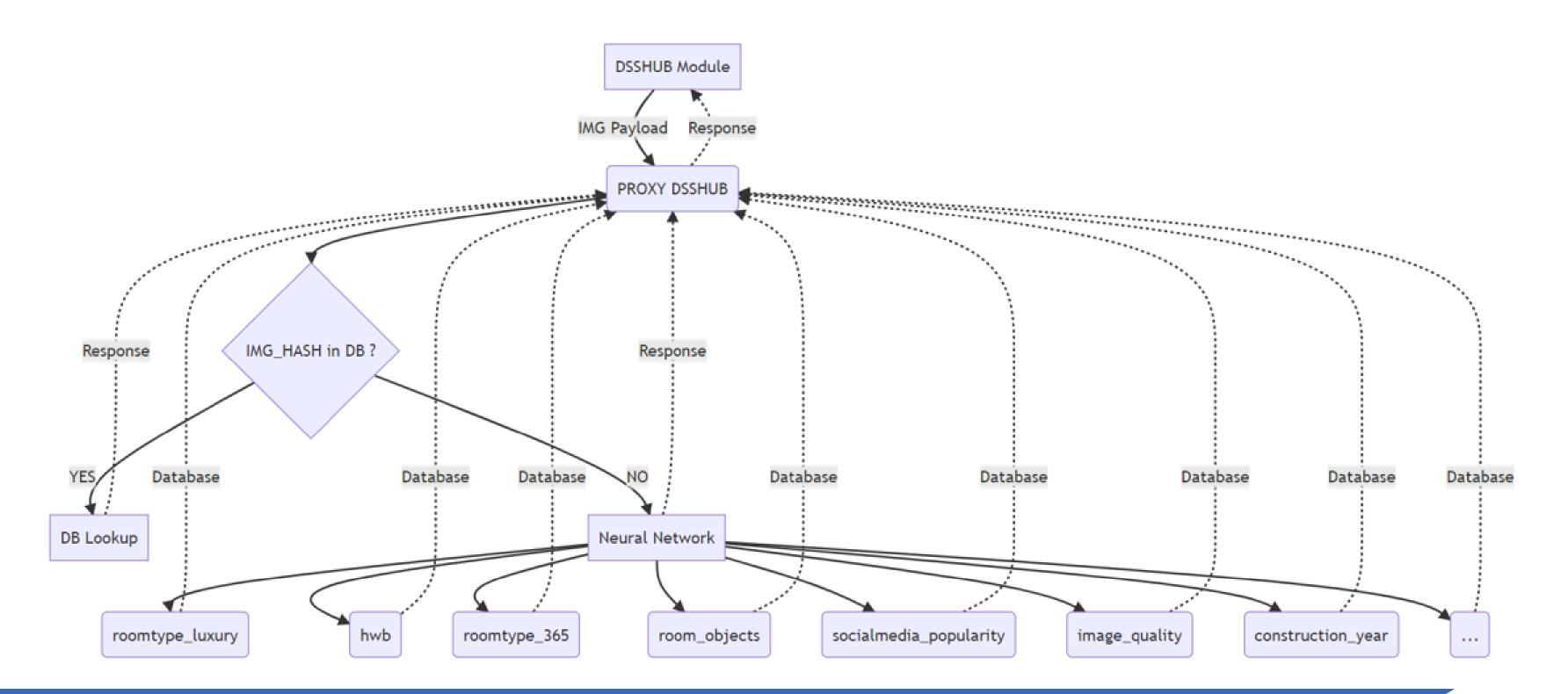
NATURAL LANGUAGE PROESSING

OCR_TM: Language Models for feature extraction from documents



ImmAzing® DSS HUB

Framework for machine learning applications "one stop shop"





ImmAzing[®] DSS HUB

Framework for machine learning applications "one stop shop"

- **REST-API** \bullet
- **Microservices** •
- DB Cached
- Python Module (PIP INSTALLER) \bullet
- TRAINING FINALIZED \bullet

```
from dsshub.core import Service
dss = Service('user_token')
dss.set_img_paths(['path_to_img_1', 'path_to_img_2', ..., 'path_to_img_n'])
response = dss.predict('service')
```



Δ SERVICE GMBH

WE LOVE FORGING POWERFUL TOOLS WITH DATA

LET'S STAY IN TOUCH

 (\square)

wb@ds-s.at

 \bigcirc

- + 43 681 / 20 73 89 25
- www.datascience-service.at
- Neubaugasse 56, Top 9, 1070 Wien, Österreich



