
Continental
The Future in Motion
TechTalk SMART MOBILITY

TechShow 2021

SCIENCE F(R)ICTION: HOW ARTIFICIAL INTELLIGENCE HELPS TO PREDICT ROAD CONDITIONS

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~ 7% of all accidents with personal damage
due to road weather conditions
No predictive road surface condition information
by onboard systems
Driving features must be deactivated based
on weather conditions
Global weather forecasts
are not precise enough
Number of connected vehicles might be too low for crowdsourcing
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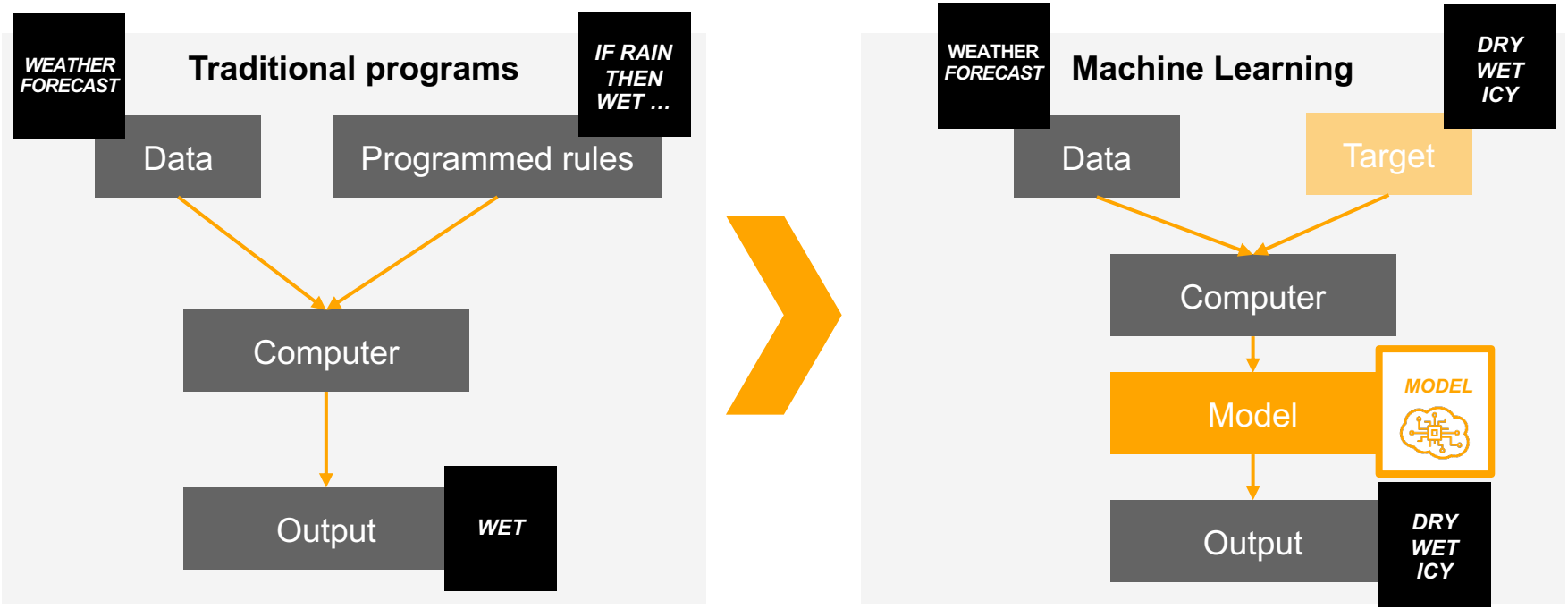
Machine Learning Models Automatically Learn from Data



Road Surface Condition Service

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Model Inputs 1

Enhanced weather forecast

Contextual map data

Vehicle data (future evolution)

Model deployment

Machine Learning Models 2

Continental Cloud

Training/ validation data

For model training only

› Road surface class
› Road temperature

Validation

Model Outputs 3

Road surface condition class:
dry, wet, heavy wet, icy

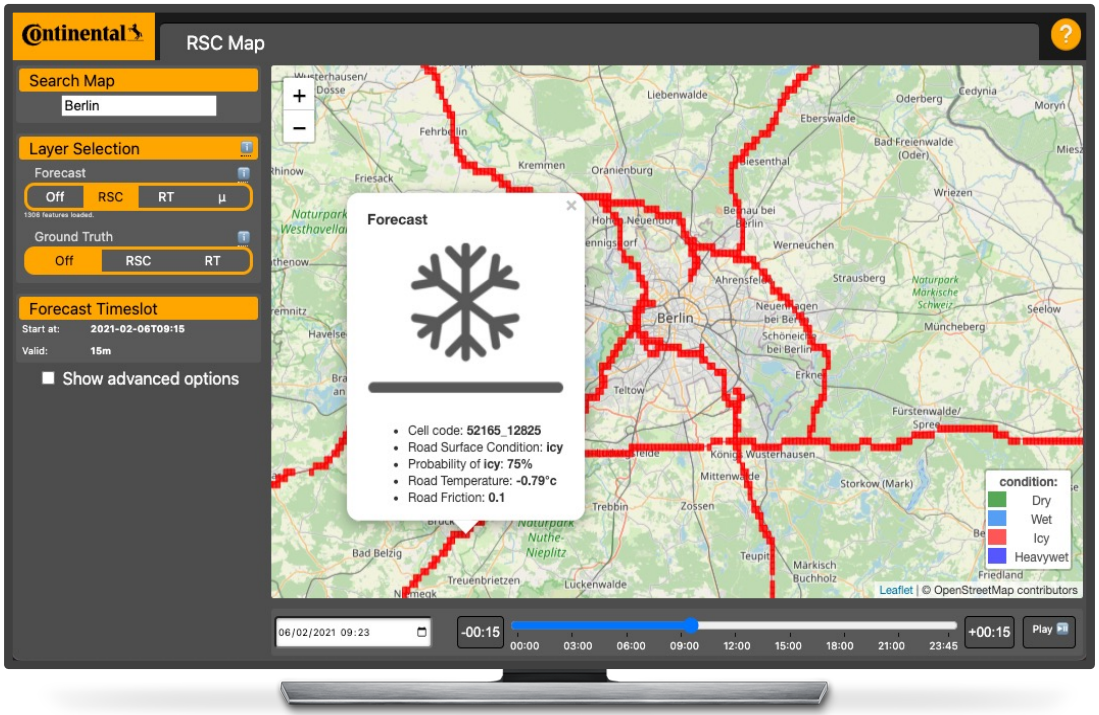
Confidence level

Road temp | Water height | Friction value

New prediction:
› 15 min frequency
› 200 m resolution

Model training
Service in production

Live Demonstration



The Service Enables Several Use Cases

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Informing drivers, road infrastructure and maintenance	Route planning	Driver alerts / warnings
	Variable speed limits	Winter road maintenance
Adapting Powertrain and Chassis functions	Predictive Energy Management	Preview ESC
	Motion Control	Traction Control
Enhancing and enabling ADAS functions	(De-) Activation of HAD functions	Automatic Emergency Braking
	Predictive ACC	Cruising Chauffeur
	Highway Pilot	

Results on European highways

- Accuracy: **75.8%**
- Risk: **1.4%**

Results with OEMs

- For air temperatures < 4°C:
- Accuracy in wet or icy situations: **93%**
- Availability: **+47%**


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THANK YOU!