

# DETERMINISTISCHES NILM-FRAMEWORK FÜR GERÄTE DETEKTION IN AGGREGIERTEN LASTPROFILEN

Benedikt Herold, Paul Bauer, Stefan Wilker, Thilo Sauter

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ICT Energy&IT Group  
introducing smart to the electricity grid



TECHNISCHE  
UNIVERSITÄT  
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Institute of  
Computer Technology





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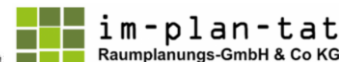
## Industriepartner (Exzerpt)



Ein Unternehmen der ENERGIE STEIERMARK



## Wissenschaftliche Partner



## Organisationen



ETIP SNET



V2G Alliance Austria

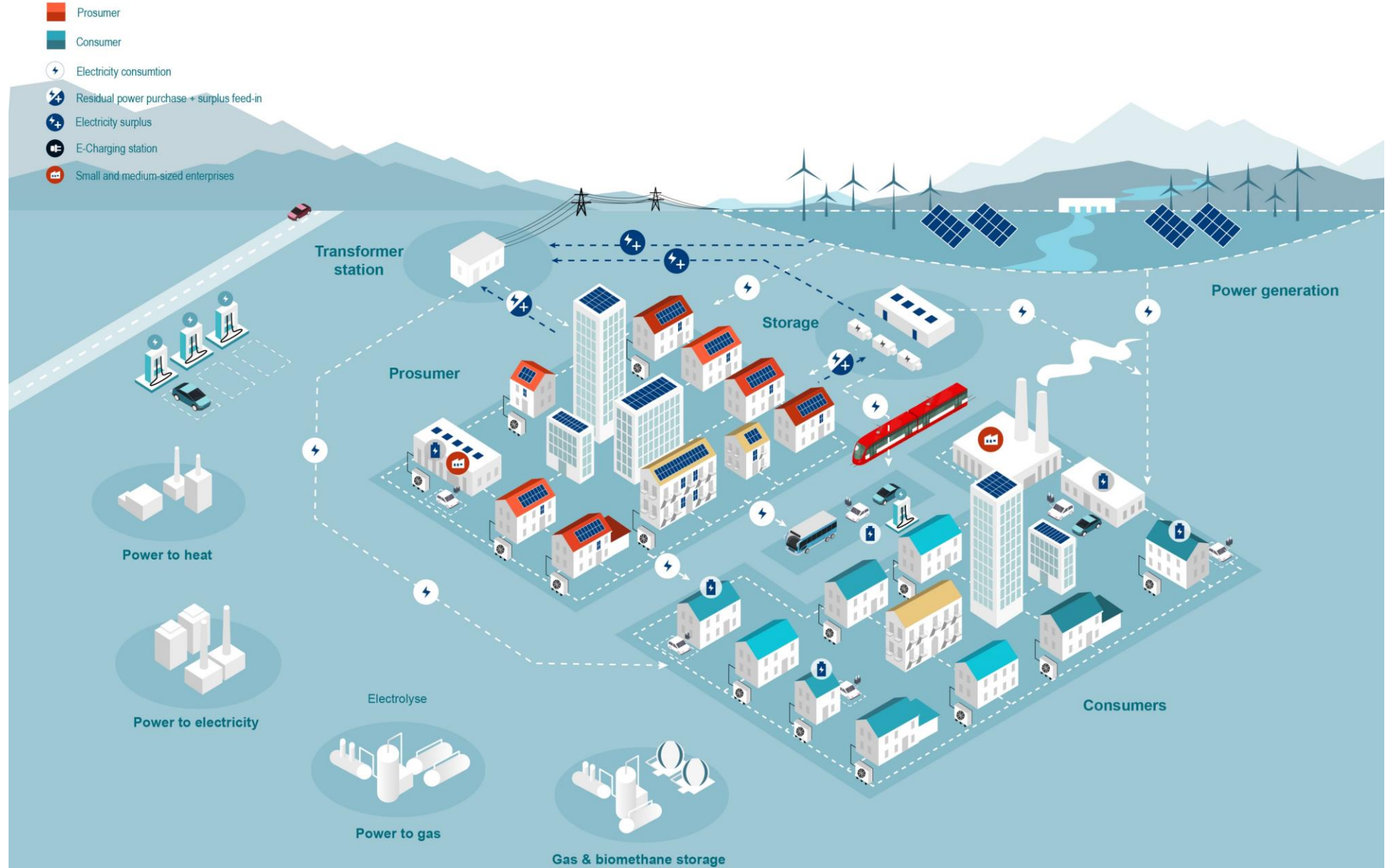
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## Städtische und regionale Partnerschaften



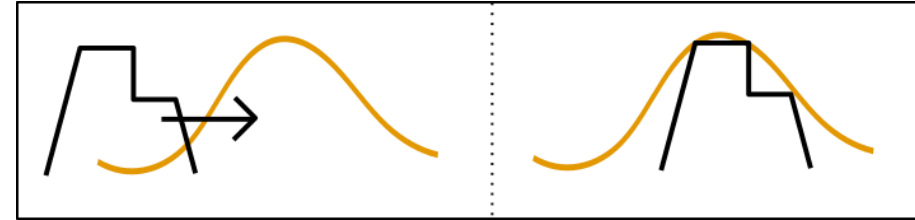


- Prosumer
- Consumer
- Electricity consumption
- Residual power purchase + surplus feed-in
- Electricity surplus
- E-Charging station
- Small and medium-sized enterprises

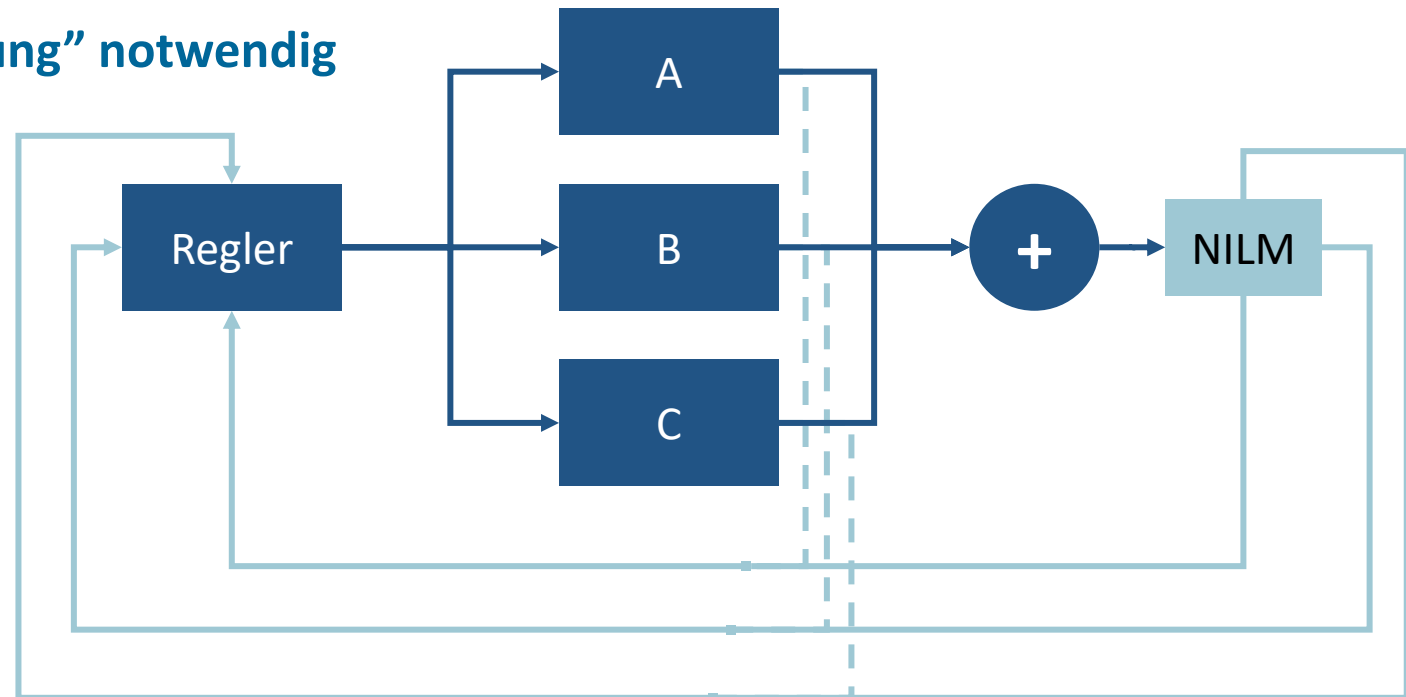


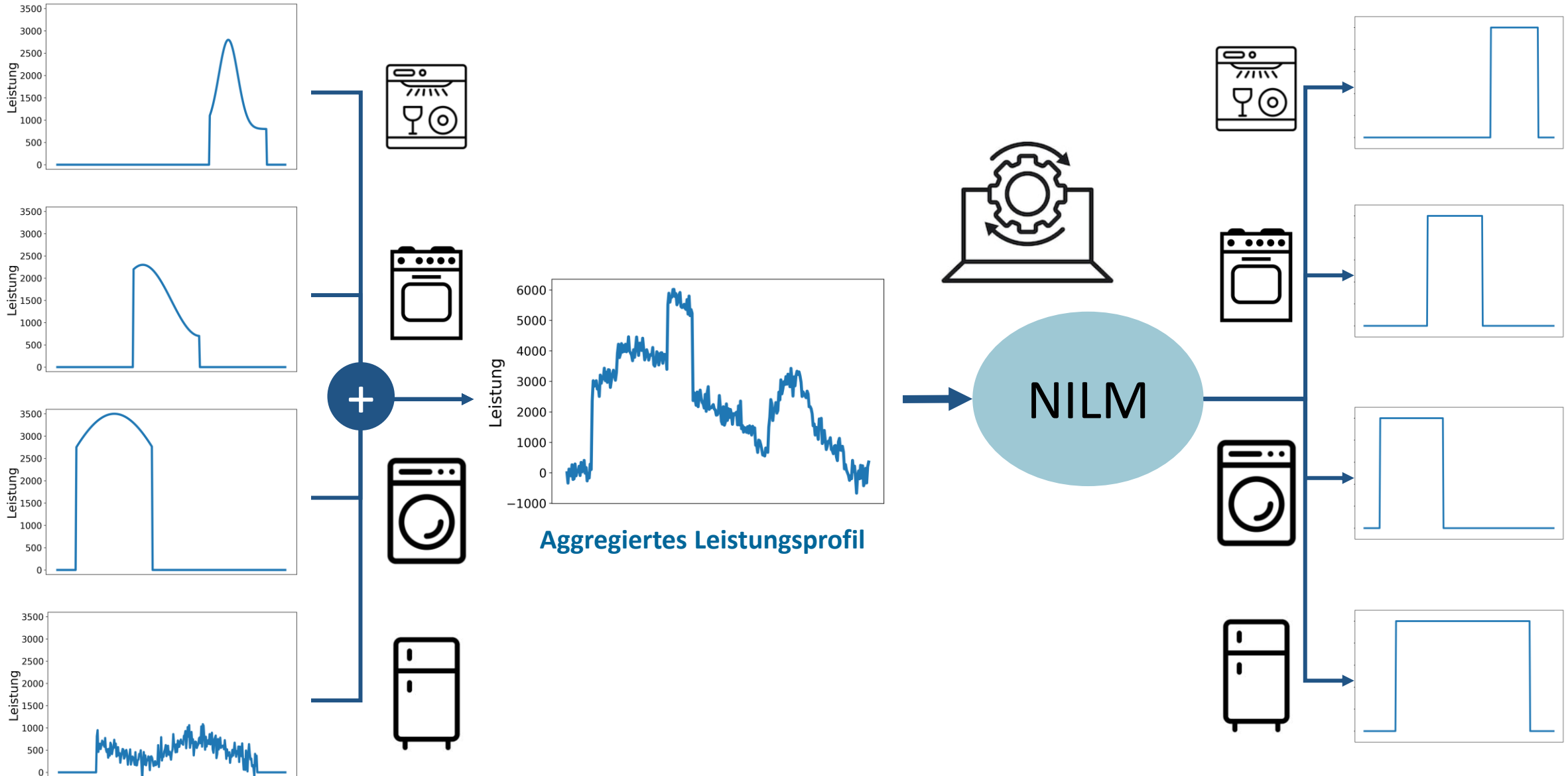
## Vorhersagen für Optimierung wichtig!

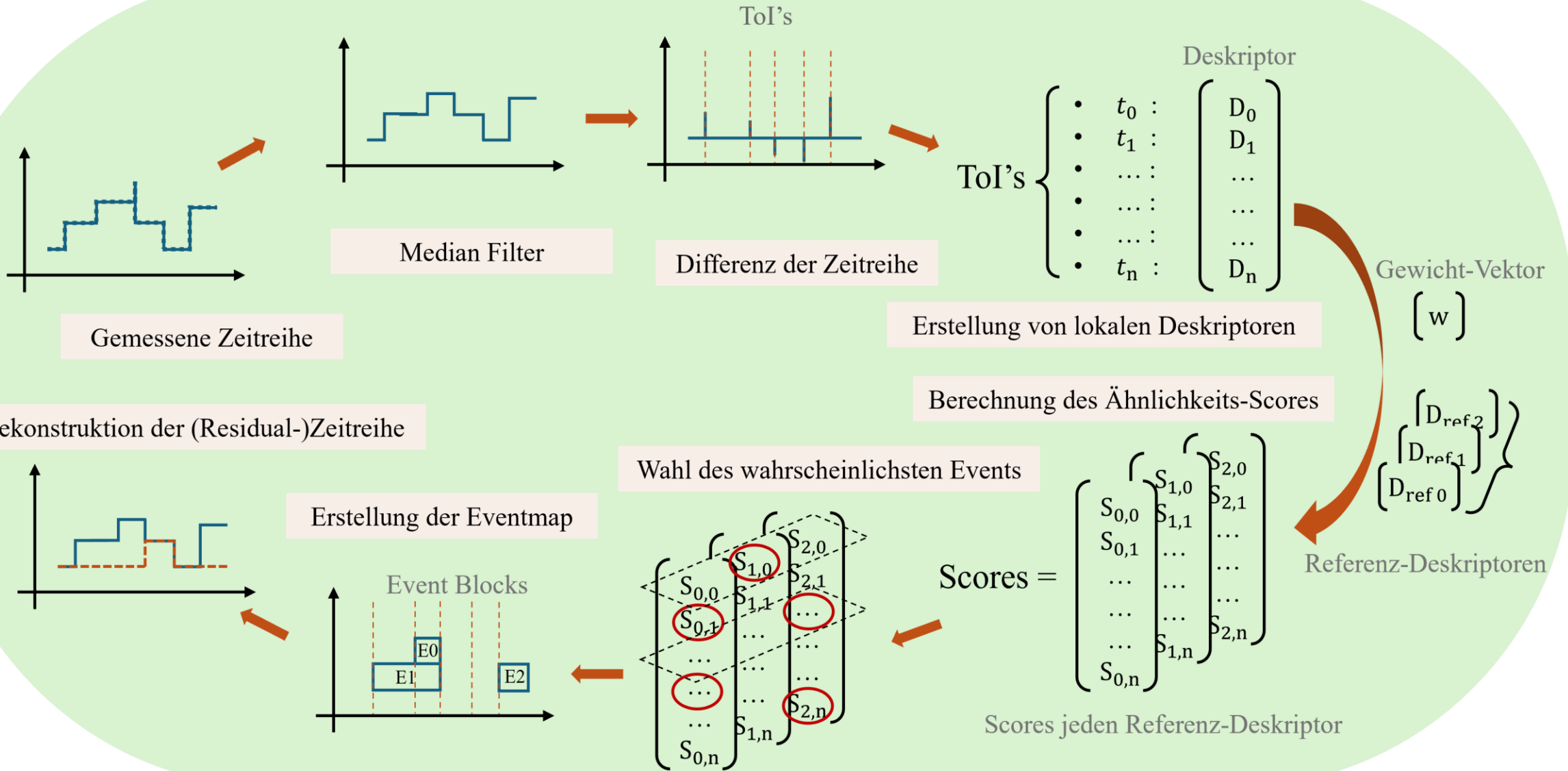
- Auf Geräte(-Gruppen) Ebene
- Verhalten von Geräten (er)kennen



## Regelung von Geräten → “Messung” notwendig

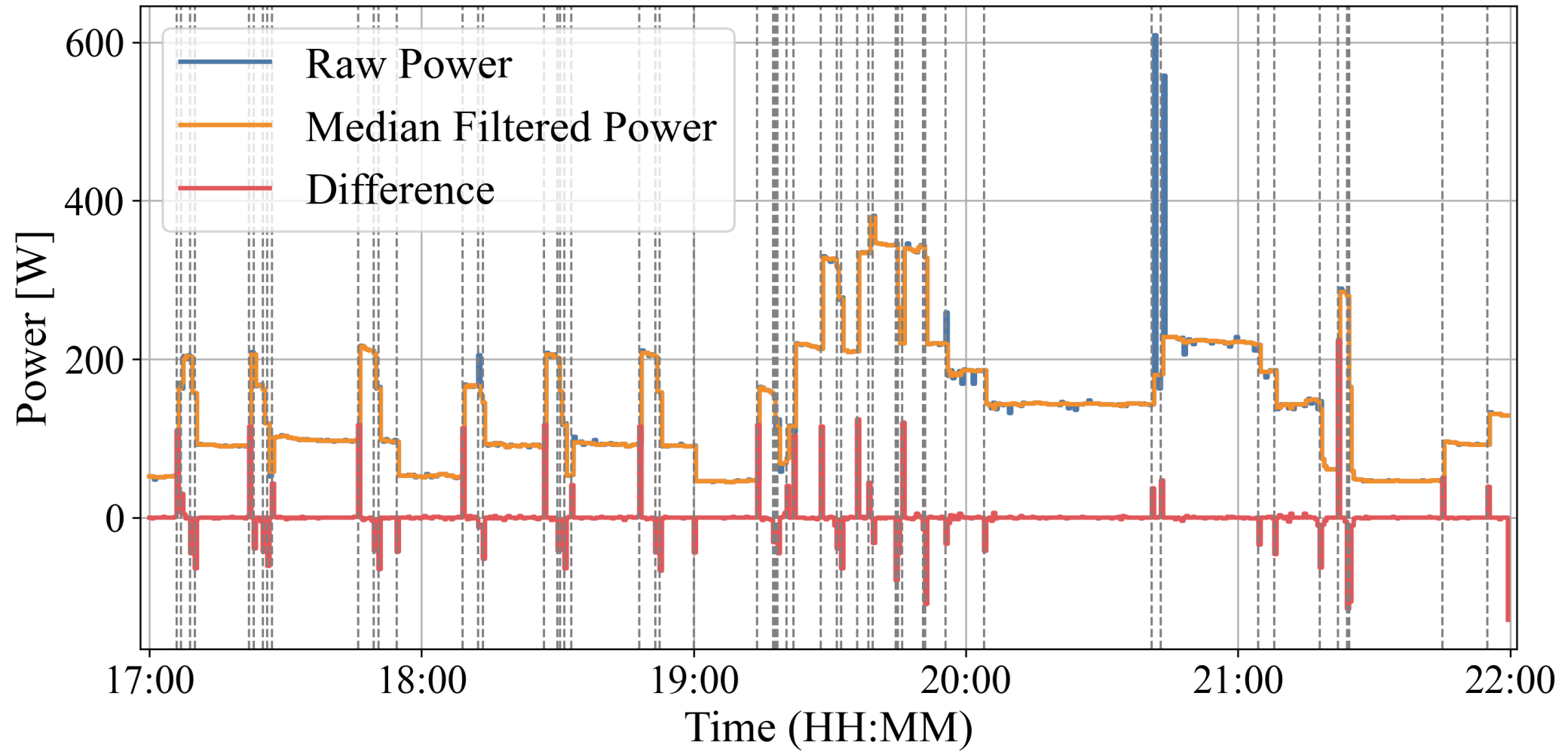


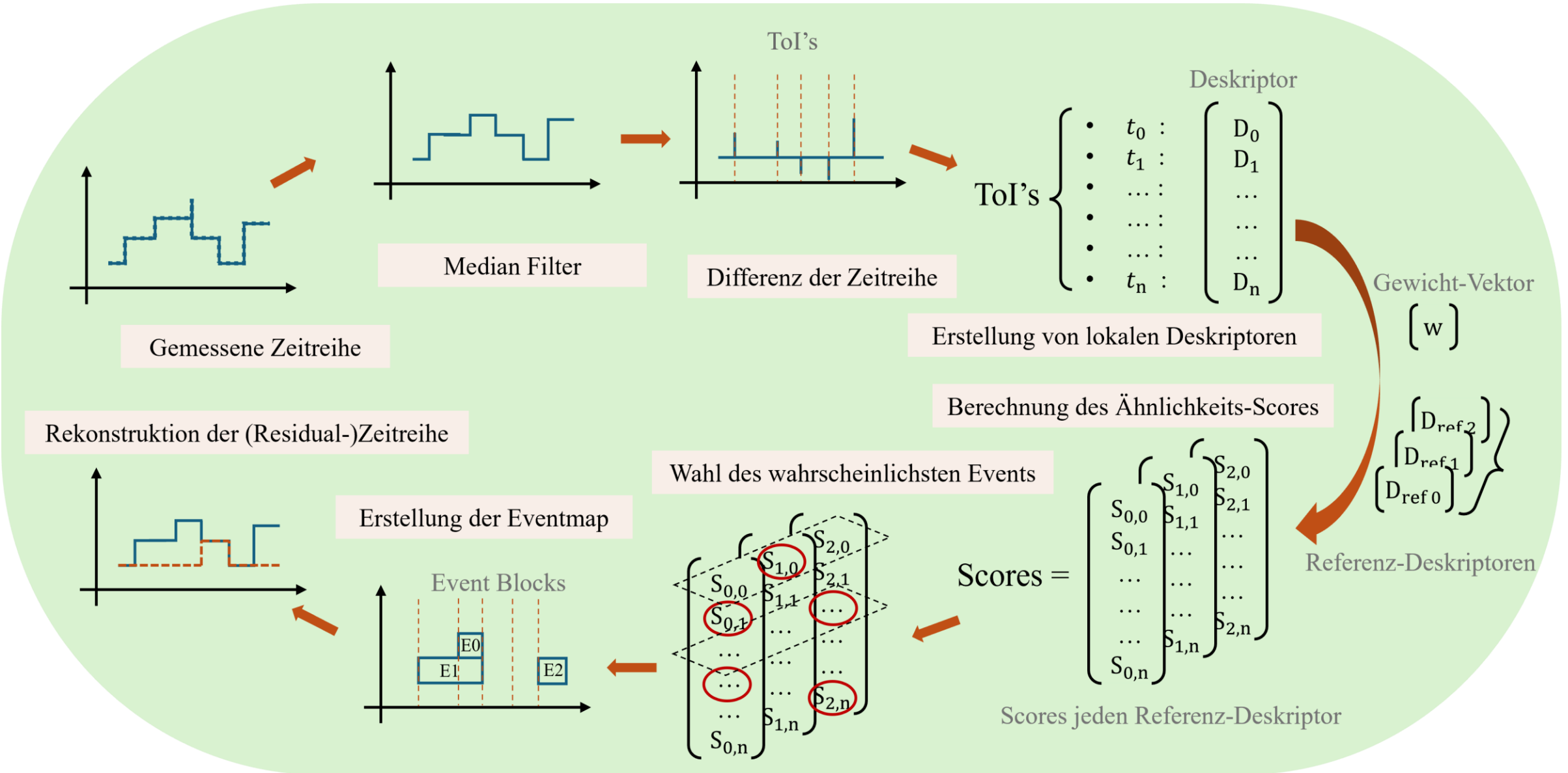






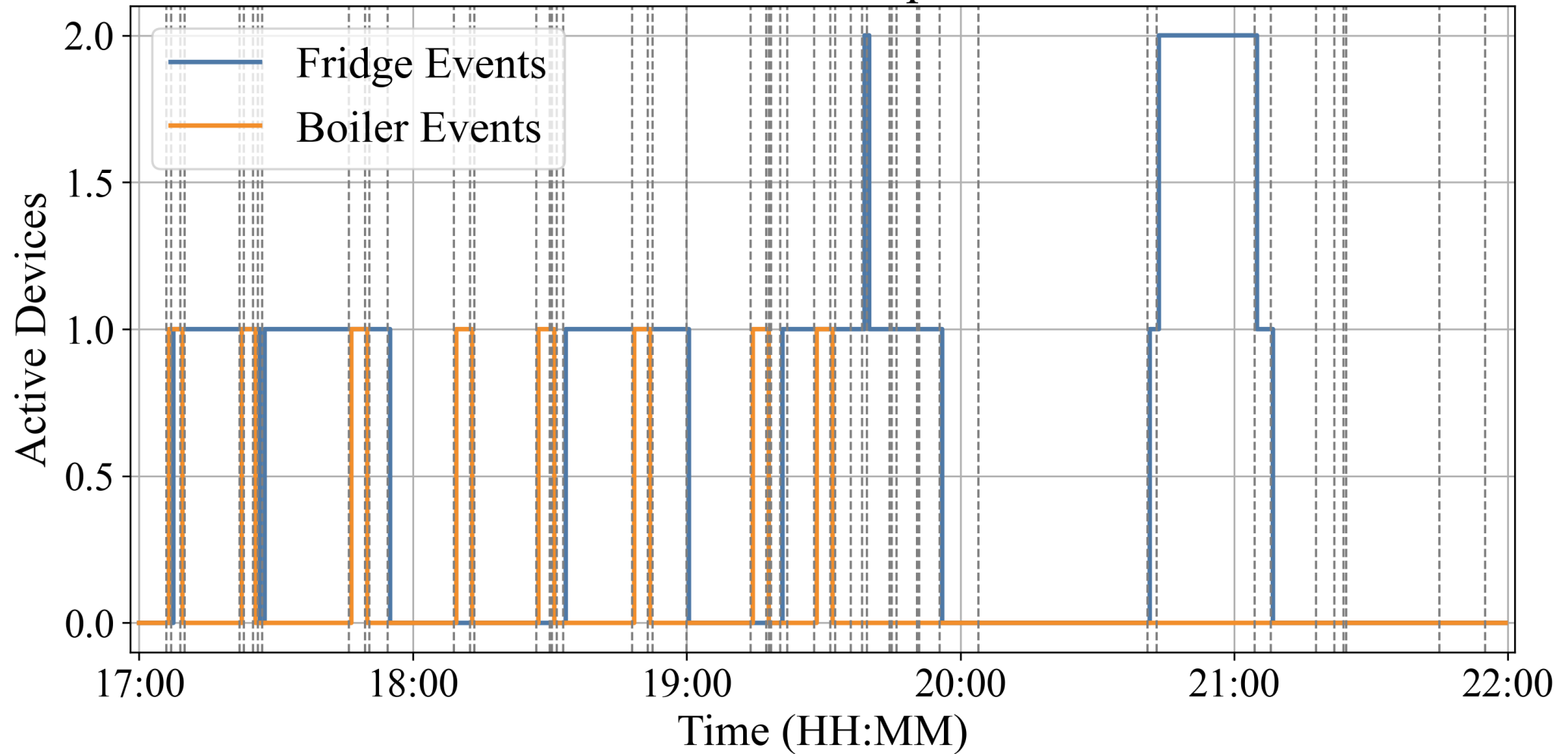
## ToI Generation

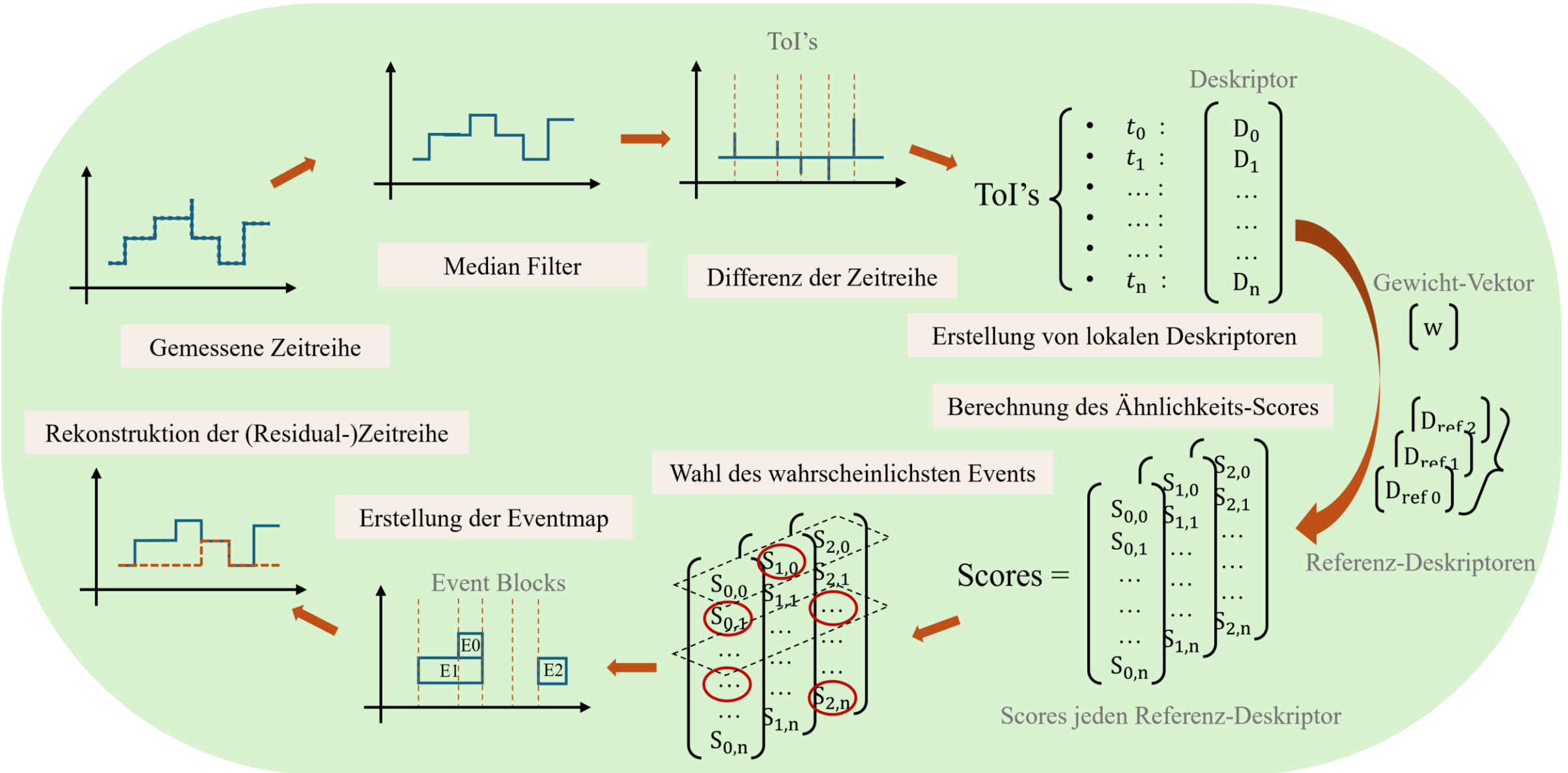






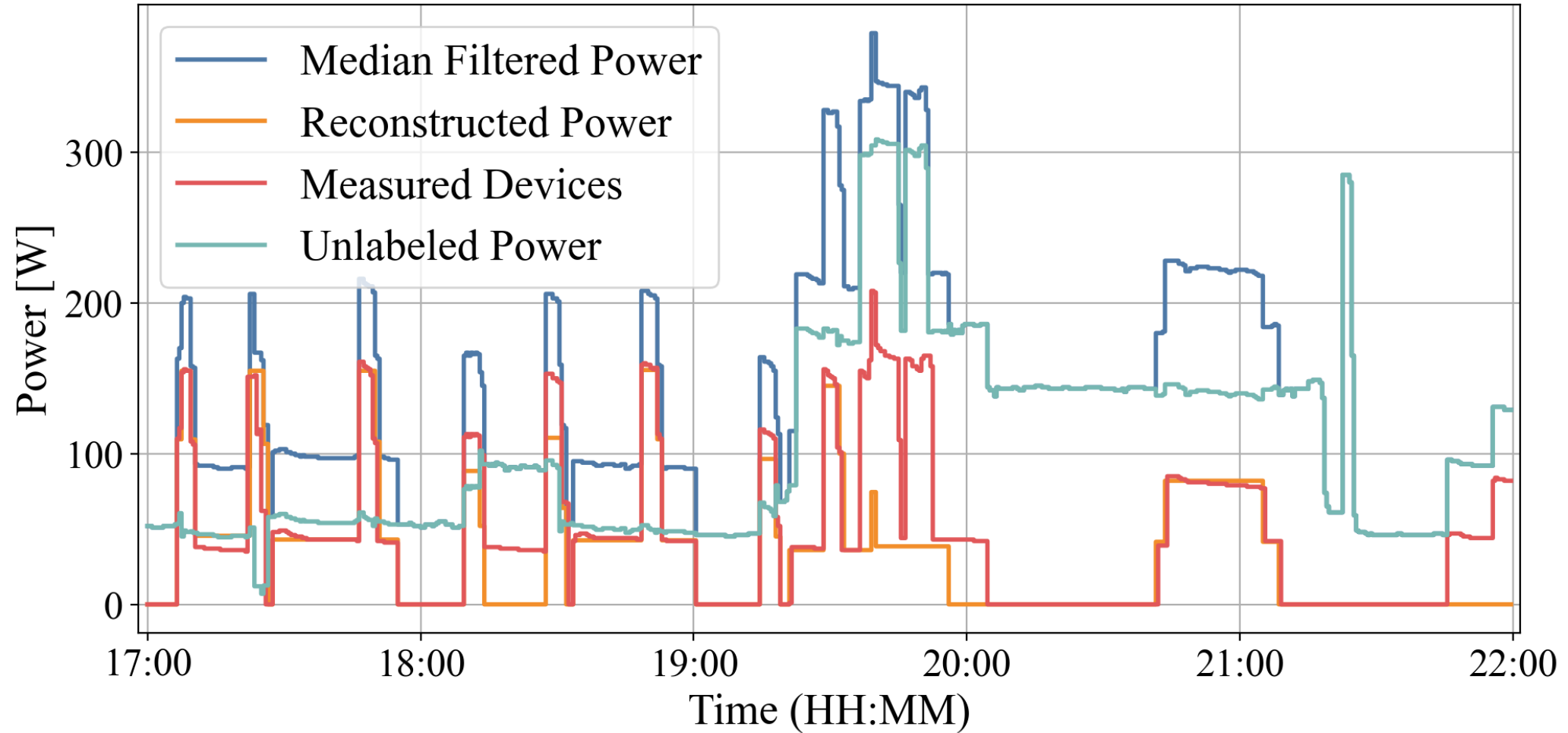
## Event Map







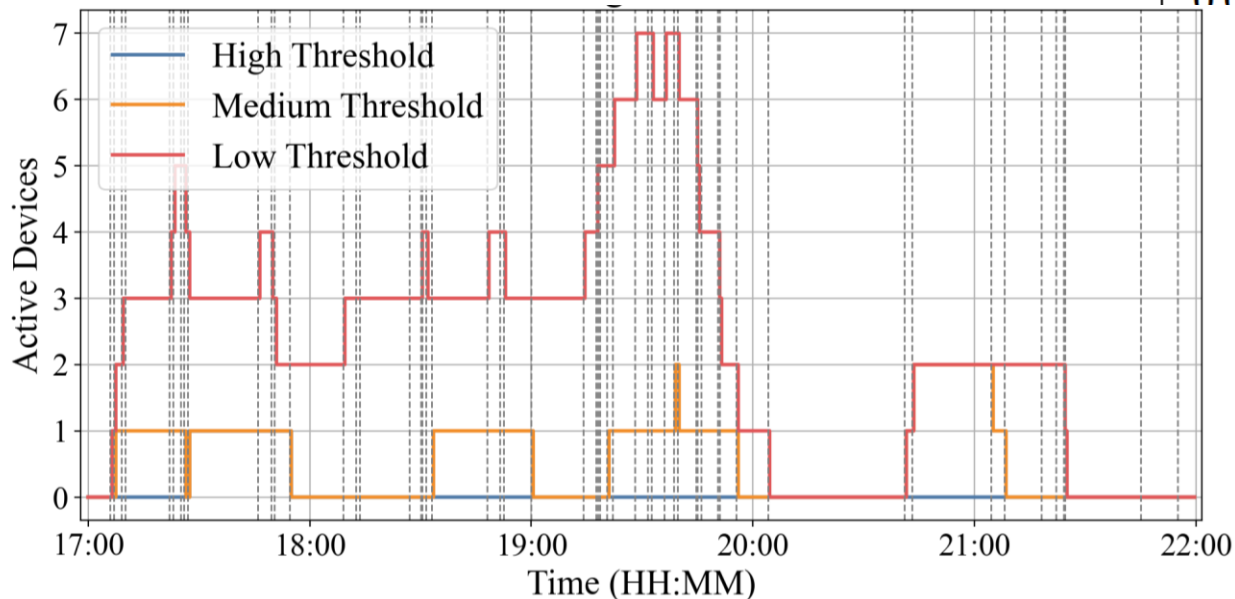
## Reconstructed Timeseries





- **Precision:**  
Richtige Treffer
- **Recall:**  
Gefundene Events
- **Accuracy:**  
Richte Treffer und Nicht-Treffer

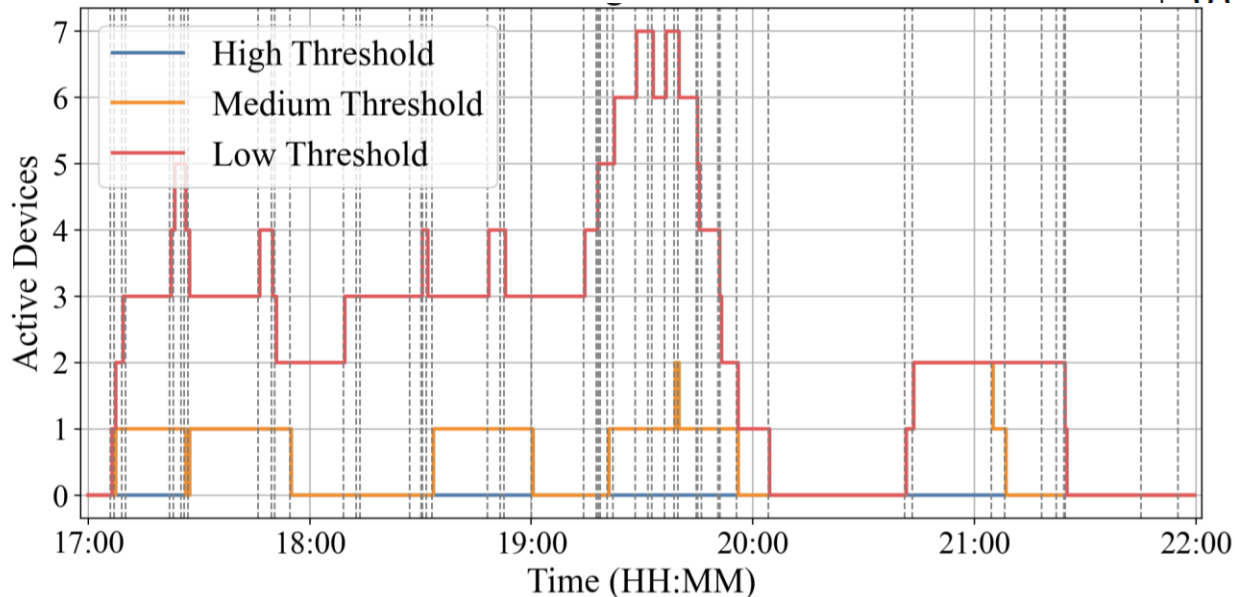
Match-Score Threshold	Fridge			Gas-Boiler		
	Prec.	Recall	Acc.	Prec.	Recall	Acc.
0.5	1.00	0.01	0.86	1.00	0.03	0.61
0.35	0.80	0.03	0.86	0.98	0.15	0.66
0.2	0.91	0.13	0.88	0.99	0.38	0.75
0.1	0.80	0.25	0.89	0.98	0.63	0.84
0.05	0.87	0.75	0.96	0.98	0.83	0.92
0.01	0.88	0.87	0.98	0.97	0.85	0.93
0.007	0.80	0.88	0.97	0.95	0.89	0.93
0.005	0.64	0.89	0.92	0.90	0.88	0.91
0.002	0.33	0.94	0.71	0.82	0.89	0.88
0.001	0.19	0.94	0.36	0.59	0.90	0.71





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Richte Treffer und Nicht-Treffer

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Excited for more !


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Das Projekt OptiFlex wird aus Mitteln des Klima- und Energiefonds und des Bundesministeriums für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie gefördert und im Rahmen des Energieforschungsprogramms 2024 durchgeführt.



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