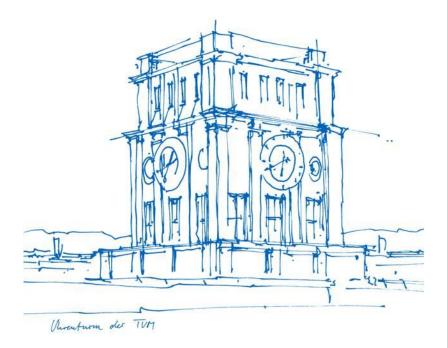


CementHub

Science Hack – Final Presentation

Aaron, Martin, Quirin, Thomas



Data Science for Sustainable Construction Materials



Climate change is the biggest challenge of the 21st century

- Climate change is mainly caused by CO₂
- Concrete production accounts for 8% of world's CO₂ emissions
- Research towards sustainable concrete production
- Scientific data is often stored in multiple Excel files
- Different formats hamper data analytics
- Consistent data drives research forward









Research data is messy

- Dozens of Excel files
- Not searchable or filterable
- Different formats and units
- Data analysis impossible

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Introducing CementHub

- Responsive web application
- Simple user-friendly UI
- Data organization and filtering
- Enforcing consistent data
 format
- User Authentication

AI Filt	Experime	ents													
	Actions	Date Time	Coworker	Lab Journal Code	Cement ID	Cement Name	Clinker Factor	Cement amount (g)	Water amount (g)	W/C	Additional Material 1	Additional Material 1 (g)	Additional Material 2	Additional Material 2 (g)	Addi Para
	View details Export CSV	04/16/2021 16:49	LAT	LAC_CAL002	LAC_SSS001SU02	SynCem	0.69	4.0	2.0	0.5	-	_	-	-	-
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CementHub
Login
Username:
Password:
Login
Lost password?



Logout

Seamless data upload

CementHub Logged in as: joe

Add metadata

Cement amount (g)*

- Edit data labels on the fly to guarantee a consistent structure
- Convert units to a standardized format
- Organize metadata

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Experiments Upload

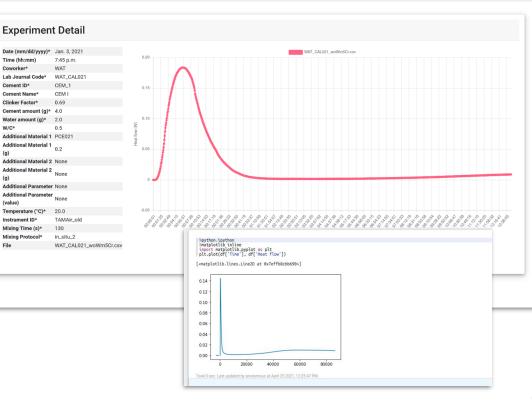
Logou

From data to value

- Data visualization for quick overview
- Connect data to Apache Zeppelin, Jupyter Notebooks and many more
- Export as plain CSV

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CementHub Logged in as: aaron









CementHub: http://135.125.219.68:8000/cementhub/ user: joe password: cementhub

Apache Zeppelin: http://135.125.219.68:8080 open "Jupyter Demo" notebook