HAW Kiel
Hochschule für Angewandte Wissenschaften Kiel
Kiel University of Applied Sciences

MADS-SMA - Social Media Analytics

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General information	
Module Code	MADS-SMA
Unique Identifier	SocialMedAna-01-MA-M
Module Leader(s)	Prof. Dr. Schwörer, Tillmann (tillmann.schwoerer@haw-kiel.de)
Lecturer(s)	Prof. Dr. Schwörer, Tillmann (tillmann.schwoerer@haw-kiel.de)
Offered in Semester	Wintersemester 2024/25
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)

Study Subject: M.Sc. - DS - Data Science
Module type: Pflichtmodul
Semester: 2

Qualification outcome

Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.

Students
- know the fundamentals of social media analytics
- know the most commonly used concepts and techniques in the field of natural language processing and network analysis

Students
- are able to apply state-of-the art algorithms in the field of NLP and network analysis to solve real-word problems
- are able to evaluate the usefulness and quality of algorithms and results
- are able to critically assess the social implications of algorithms and applications

Students
- are able to report and present solutions for practical project tasks
- are able to leverage the individual skills of all team members

Students
- are able to work professionally in the field of social media analytics
- are able to give and accept professional feedback to different topics of social media analytics
- are able to identify and process relevant scientific literature

Content information	
Content	Course contents: 1. Handling Social Media Data 1.1 Data Acquistion: APIs and Web Scraping 1.2 Data Storage: JSON, Document databases, vector stores 2. Social Network Analysis 2.1 Network analysis and visualization 3. Natural Language Processing (NLP) 3.1 Classical NLP 3.1.1 Preprocessing and feature engineering for text data 3.1.2 Training supervised and unsupervised machine learning models for text data 3.1.3 Topic Modelling 3.2 Transformers in NLP 3.2.1 Embeddings 3.2.2 Transformers and Large Language Models 3.2.3 Transfer learning with Encoders 3.2.4 Generative Language Models 3.2.5 Retrieval Augmented Generation Example Applications: - Text classification: e.g. Sentiment Prediction, Hate Speech Detection - Token classification: e.g. Named Entity Recognition - Information extraction and text summarization
Literature	- Lecture Slides - Jurafsky, D. and Martin, J.H. (2024): Speech and Language Processing. An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition, available online: https://web.stanford.edu/~jurafsky/slp3/ed3bookfeb3_2024.pdf - Sarkar, D. (2019): Text Analytics with Python

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag + Übung	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MADS-SMA - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Absatz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Solid knowledge of Python Programming and Machine Learning