

# **INF-KDDM: Knowledge Discovery and Data Mining**

Winter Term 2020/21

## **Lecture 1: Introduction**

Lectures: Prof. Dr. Matthias Renz

Exercises: Niko Amann (MSc) / Christian Beth (MSc)

## About the course

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- Class schedule
  - Online Lecture: Recorded lecture material for download + online live sessions
    - The lecture will be provided as a podcast series (available for download), made available Mondays from 4pm.
    - The material provided on Monday will be briefly recapped and discussed in the live-session (Tuesdays 13:00-13:45) that will be conducted via ZOOM (Entry-links will be provided via iLearn-portal). In the live-Sessions, you have the opportunity to ask questions to the addressed topics.
  - Exercise Class: Wednesday 14:15 – 15:45, CAP 4 – R.715.
  - Homework Assignments: Assignments almost every week. Discussion in Exercise Class.
- Office hours:
  - Prof. Renz: Tuesdays, 2:00 - 3:00 pm, by ZOOM, please make an appointment by e-mail [mr@informatic.uni-kiel.de](mailto:mr@informatic.uni-kiel.de), Subject: office hour meeting
  - Assistants (Christian Beth) by appointment (email: [stu115337@mail.uni-kiel.de](mailto:stu115337@mail.uni-kiel.de)).
- Exam:
  - Final Exam: End of the term, in written form.
  - Exam will be based on the material discussed in the class with focus on the exercises.
  - For the admission of the final exam you need to submit an adequate solution of selected exercises.
- Grade
  - Based on the final written exam at the end of the term.

## Who am I?

- Diploma in Electrical Engineering

Munich University of Applied Sciences, Germany, 1997-2002.



- Diploma in Computer Science

Department of Computer Science, Ludwig-Maximilians University Munich, Germany, 2002.

- PhD in Computer Science

Department of Computer Science, Ludwig-Maximilians Universität (LMU) Munich, Germany, 2006.



- Habilitation in Computer Science

Department of Computer Science, Ludwig-Maximilians Universität (LMU) Munich, Germany, 2011.

- Acting chair of the Database Systems Group

Department of Computer Science, Ludwig-Maximilians Universität (LMU) Munich, Germany, 2015.



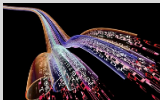
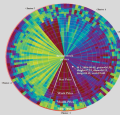



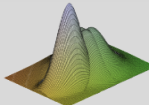



- Associate Professor (Data Mining and Data Science)

Department of Computational & Data Science, George Mason University, 01/15/2016 – 06/01/2018.

- Professor at CAU Kiel, 07/01/2018 – present. (Archaeoinformatics – Data Science)



## My research interests ...

Portfolio				
Applications	Big Data Analytics, e-science / Industrie 4.0, Business Analytics, Expert Systems, Recommendation Systems, Predictive Analytics			
Environment	Data in X-Science, Sensor Networks, IoT, Social Media			
Data	<div><div> Streams</div><div> High Dimensional</div><div> Text</div><div> Enriched Geo</div><div> Timeseries</div><div> Uncertain</div><div> Graphs</div><div> Multimedia</div><div> Spatiotemporal</div></div>			
Research Topics	<b>Managing:</b> <ul style="list-style-type: none"><li>• Data Management</li><li>• Similarity Models</li><li>• Indexing</li></ul>	<b>Feature Extraction &amp; Searching:</b> <ul style="list-style-type: none"><li>• Similarity Search</li><li>• Embedding</li><li>• Query Processing</li><li>• Relevance Search</li></ul>	<b>Mining:</b> <ul style="list-style-type: none"><li>• Clustering</li><li>• Outlier Detection</li><li>• Frequent Pattern Mining</li></ul>	
Addressed Research Communities	ACM SIGSPATIAL		ACM SIGMOD	
			ACM SIGKDD	

## Outline

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- Why to study Data Mining?
- Why do we need Data Mining?
- What is Knowledge Discovery in Databases (KDD) and Data Mining?
- Main data mining tasks
- What's next