MIA

predictive medicine

Dr. Antje Lechner | Thomas Krone

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1. About us

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Team

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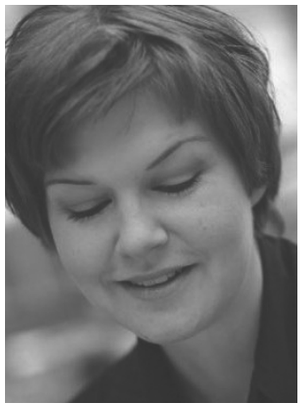

Dr. Antje Lechner
Management

PD. Dr. Wolfram Jabs
Medical Consultant

Prof. K.-U. Kühnberger
Data Science

Dr. Klaus Holthausen
Data Science

Marion Härtel
Risk Management

Thomas Krone
Management

Robert Heuer
Programming

Holger Middelberg
Usability&Design

Lars Frohn
Hospitals

Lina Michelis
Office / Network

References & Network

Universitätsklinikum Essen, Klinik für Nephrologie
Prof. Dr. med. A. Kribben

Vivantes Netzwerk für Gesundheit GmbH
Dipl. Informatiker Gunther Nolte (Ressortleiter IT / TK)

Universität Osnabrück | Institute of Cognitive Science
Prof. Dr. K.-U. Kühnberger (Cognitive Science /Artificial Intelligence)

Fraunhofer-Institut für Software- und Systemtechnik ISST
Dr. Sven Meister (stv. Abteilungsleiter eHealth)

WIG2 GmbH | Institut für Gesundheitsökonomie und -systemforschung
Dr. Dennis Häckl (Geschäftsführung)

HERR DER LAGE Consulting GmbH | Digitale Transformation im Gesundheitswesen
Thomas Krone, Dr. Antje Lechner (Geschäftsführung)

…and more than 200 other hospitals in Germany

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What we do

Business consulting for hospitals / German healthcare system

- Quality Management
- Process Management
- Digital Transformation

What we do now

- Building a Risk-/Coding-Assistant

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2. Data

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Data – 1 patient

The digital patient is defined by…
(average values)

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1 DRG	Diagnosis Related Groups
6 ICDs	International Classification of Diseases and Related Health Problems
3 OPS	Operations and Procedures Codes
130 Laboratory values	Blood tests, Electrolytes, Liver, Kidney…
Personal data	Age, Sex, Hospital stays…
etc.	

Data

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Representative patient:
Urology, f – 65 years (stay: 11 d)

▶ DRG:	L13B Renal disease	(date of discharge)
▶ ICD:	**C64** Malignant neoplasm of kidney (MD)	(date of discharge)
	I10 Essential hypertension	(date of discharge)
	D47 Histiocytic and mast cell tumours	(date of discharge)
	R11 Nausea and vomiting	(date of discharge)
▶ OPS	5-554 Nephrectomy	(15.07.2015 11:39)
▶ Lab	Creatinine1: 0,97 mg/dl	(14.07.2015 11:31)
	Creatinine2: 1,72 mg/dl	(16.07.2015 08:06)
	Bloodsugar1: 198 mg/dl	(16.07.2015 09:13)
	etc.	*(dd.mm.yyyy h:min)*

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…11 hospitals

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	different (max.)	av. per ID
▶ 331,000 hospital stays (ID)	▶ 1,152 DRGs	1.6 per patient
▶ 1.9 million ICDs	▶ 1,342 ICDs	5.8 per ID
▶ 1 million OPS	▶ 950 OPS	2.7 per ID
▶ 16 million laboratory values	▶ 990 lab.val.	130 per ID

3. Tasks

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Sets of tasks

3 (or 4) main challenges

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1. Prediction of risks and diseases
   - Risk Assistant
2. Optimisation of risk scores
   - Automated Scores
3. Digitalisation of manual processes
   - Inverse Medical Pathways

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4. Include unstructured data (text, pictures, scans) into the analysis

Task 1:
Risk prediction

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22,000 patients are treated yearly in our sample hospital.

3,6% of these will suffer from acute kidney failure (AKI, N17).

25% of those can be avoided with the correct prediction parameters.*)

- A similar number of cases can be found in the data which conforms to the pattern of AKI, but is not coded as such.
- Further risks are stroke (I63), cardiac insufficiency (I50), cardiac arrest (I21), Diabetes (E11) etc.

We are looking for a prediction model which predicts medical risks.

2 Task 2: Improve existing risk scores

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Existing medical risk scores (e.g. for stroke) are usually calculated by answering a set of questions and summing specific points for each answer.

We would like to enhance this method, by finding and adding factors and by calculating in more detail (e.g. age categories, diabetes not only from case history, but from data).

We are looking for more accurate medical scores.

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5. Outlook & Contact us

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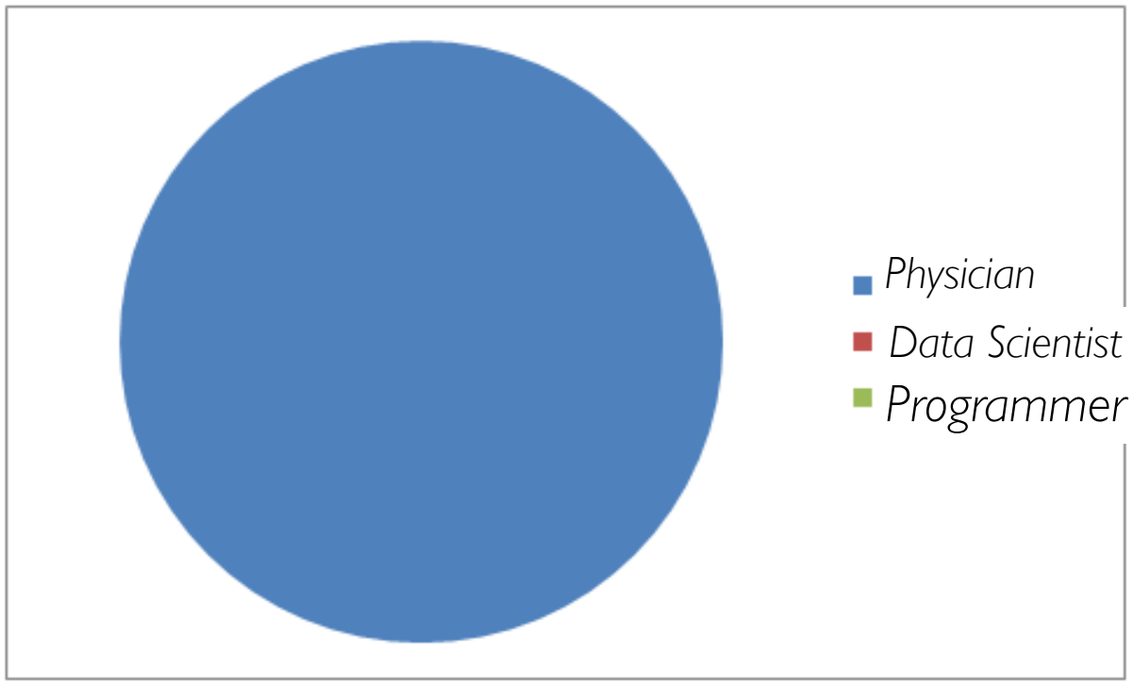
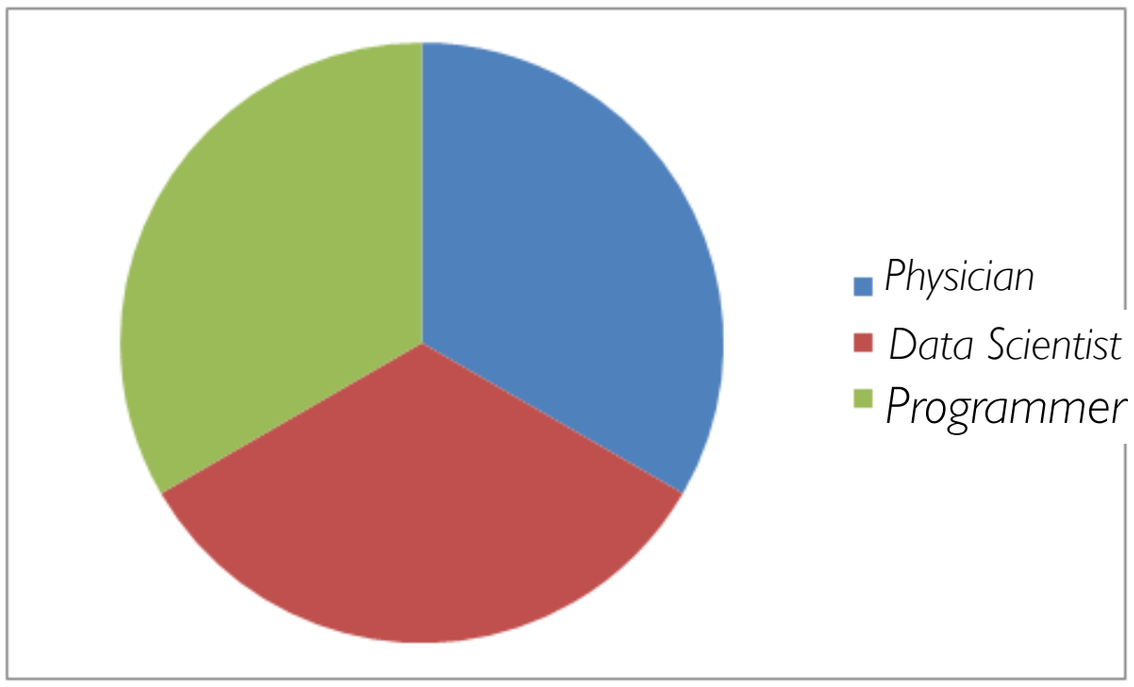
„In the future patients will also be treated by a doctor – whether this is a medical practicioner, we don‘t know yet.“

2010



2020



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To proceed:

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- We are looking for tried and tested methods, not for explorative studies.
- We would like evidence from you that you are equal to the task.
- Candidates will be invited to a workshop – there is lots to know about the data.
- We offer a fixed sum or a share in the „Digital Health Assistant“ depending on the quality and marketability of the results.

Data sample (task 1):

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Download: test dataset

ftp-Server:

Password: *(please get in contact …)*

Meet to discuss: Tuesday, 22nd November 2016 - 19 h

Contact us

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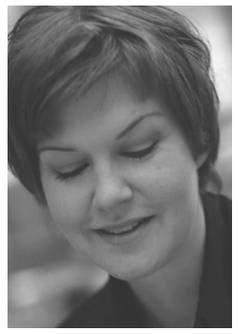

Dr. Antje Lechner
al@herrderlage.com

Thomas Krone
tk@herrderlage.com

HERR DER LAGE Consulting GmbH

Reichenberger Straße 28
10999 Berlin

www.herrderlage.com
+ 49 (0)30 - 53 000 466