



# Next Generation Data Entry for Data Driven Medicine

Project Management and Software Development  
for Medical Applications

## General Info

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## Project Abstract

Within the scope of this project, a tablet application will be developed for the structured data collection of patient-related treatment information. The application is to be used in the area of inpatient care in hospitals to enable the documentation of EPA-AC related data.

## Background and Motivation

In many clinics, documentation is still done in continuous text form. This is done in old software or in many cases even on paper. The non-existence of structured data makes it very hard to impossible to extract relevant data for research purposes. The company Avelios Medical is already part of the research group DR-AI: Radiology LMU, Dermatology LMU, CAMP/ PD Dr. Lasser and has set itself the goal of digitizing clinics in order to eliminate this problem. Part of this digitization is also the provision of an interface for the stationary patient care. In this sector EPA-AC data is being collected by the nursing staff during daily visits which serves as a basis for decision-making by the attending physicians. This data is still recorded in many hospitals in tabular form on paper.

One of the most important factors in hospitals is time. While structuring the data can save time

when analyzing the data, it must also be ensured that the input of this data is not slower than the documentation in paper form. The motivation of this practical course project is to develop an application that addresses the problem of entering EPA-AC data in a time-critical yet structured manner.

## Student's Tasks Description

As part of the internship, an iOS application for iPads is to be developed using Swift (using the framework SwiftUI). The application provides an input mask for care-givers in hospitals, which can be used to enter measured vital parameters and other information according to the EPA-AC standard. The application is to be integrated into the existing system of Avelios Medical. The focus of the project is on both ease of use and optimizing the workflow of entering the data.

Associated with the seconds requirement a further feature is to be developed. The application must provide a voice input option. This enables the input process to be as timesaving as possible and the data to be transferred to the mask in a structured manner using NLP.

Using cutting edge technology, the student will learn to create an application within a larger platform eco-system that is tailored to the requirements of caregivers in medical hospitals.

## Technical Prerequisites

The following technical requirements are demanded

- Object oriented programming

Please send the completed proposal to [ardit.ramadani@tum.de](mailto:ardit.ramadani@tum.de), [lennart.bastian@tum.de](mailto:lennart.bastian@tum.de) and [tianyu.song@tum.de](mailto:tianyu.song@tum.de). Please note that this proposal will be evaluated by the BMC coordinators and will be assigned to a student only in case of acceptance.



- Modeling with UML
- Swift and SwiftUI
- GraphQL
- Basic knowledge in Natural Language Processing

## References

<https://www.kma-online.de/aktuelles/it-digital-health/detail/tum-algorithmus-ki-dermatologie-lmu-klinikum-47406>

<https://www.research-in-bavaria.de/research-news/details/new-algorithm-for-classification-of-skin-lesions>

<https://www.epa-cc.de/bewertungssysteme/epaac/>