

SW Specification Syda[\[1449\]](#)

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1 Introduction[\[1450\]](#)

1.1 Scope[\[1451\]](#)

Specify the purpose of this Software Requirements Specification (SwRS) and its intended audience.

The purpose of this document is to define the software requirements for determining what is to be built and for

determining acceptable software behaviors. The requirements identified in this document shall be the basis for

implementing software architecture, designs, and test procedures.

The intended audiences of this document are device development team.

A model/Algorithm that can Generate Synthetic Abdominal CT scans that can achieve a good "Similarity measure" so that it can be used to generate CT datasets. The main purpose of this was to Generate more data to help build a Renal Stone Detection Algorithm.

Input<https://dev.azure.com/BayerFLATSandbox/Synthetic%20Data%20%28SYDA%29/wiki/wikis/Synthetic-Data-%28SYDA%29/wiki/33/Product-Description?anchor=input>

Dataset

- Image Type : Abdominal CT Scan, Non- contrast

Output

- Synthetic Abdominal CT "No Stone" Scan,

Side Note

- Focus on "No Stone" images

Output<https://dev.azure.com/BayerFLATSandbox/Synthetic%20Data%20%28SYDA%29/wiki/wikis/Synthetic-Data-%28SYDA%29/wiki/33/Product-Description?anchor=output>

Specified number of output exams in the requested resolution and format

1.2 Scope[\[1452\]](#)

Describe the scope of the product that is covered by this document, particularly if it describes only part of the system or a single subsystem.

Enter here.

Example:

The requirements defined in this document only apply to the following features/components:

- Developing a preprocessing pipeline for Large amounts of Data
- Developing a model training solution
- Developing a simple inference code to use the model/algorithm
- implement the Development with the shortlisted Tools of Flat process

Do not apply to: (justify)

- Model deployment to a device/cloud
- Any UI wrapper on top of the model functions

2 Definitions, Acronyms and Abbreviations[\[1453\]](#)

Enter here.

Example:

- ISI – Imaging System Interface

3 Applicable and Reference Documents[\[1454\]](#)

Req_ID	Requirements	Requirements Type	Add additional column as needed
Enter requirement ID	Enter contents	Enter type Example: Functional or Interface	
...	...	...	...

4 Functional and Capability Requirements[\[1455\]](#)

Consider performance (e.g., purpose of software, timing), physical characteristics (e.g., code language, platform, operating system), computing environment (e.g.,

hardware, memory size, processing unit, time zone, network infrastructure) under which the software it to perform, and need to compatibility with upgrades or multiple

SOUP or other device versions.

Enter detailed requirement here.

Functional requirements to start with Development:

- Virtual/Device environment setup to facilitate development.
- The system should have Python available, since the code will be written in Python.
- the Necessary CPU and GPU's to handle Algorithm computations
- CCloud services like AI platform, Dataflow.
- Access to Azure Devops with Modern Requirements plugin.

5 Software System Inputs and Outputs[\[1456\]](#)

The Training Software system requires the Versioned Data to be provided as input and fed to the training pipeline which would output the model artifacts.

The Inference Software system would expect path to write out the images and a single Integer input which is the number of images to generate. this will be communicated via a REST API call. the images will be written out to the output folder as Niftii images.

6 Interfaces Between the Software System and Other Systems[\[1457\]](#)

No External integrations other than the services offered by GCP

7 Software-Driven Alarms, Warnings and Operator Messages[\[1458\]](#)

No Updates

8 Security Requirements[\[1459\]](#)

No Updates

9 Usability Engineering Requirements[\[1460\]](#)

No Updates

10 Data Definition and Database Requirements[\[1461\]](#)

Data to be used from the RDL database and the relevant Data will be transferred and available to the Project's Bucket. More details will be tracked in the Data management Plan.

11 Installation and Acceptance Requirements[\[1462\]](#)

Requirements at the operation and maintenance site or sites.

Enter detailed requirement here.

12 Operation and Maintenance Requirements[\[1463\]](#)

Requirement related to methods of operation and Maintenance.

Enter detailed requirement here.

13 User Documentation to be Developed[\[1464\]](#)

Enter detailed requirement here.

14 User Maintenance Requirements[\[1465\]](#)

Enter detailed requirement here.

15 Regulatory Requirements[\[1466\]](#)

Enter detailed requirement here.

16 Safety Requirements[\[1467\]](#)

Enter detailed requirement here.