



# Credence Cartridge Radiomics Phantom CT Scans with Controlled Scanning Approach (CC-Radiomics-Phantom-2)

## Summary

This collection consists of 251 CT scans of Credence Cartridge Radiomic (CCR) phantom. This texture phantom was developed to investigate the feature robustness in the emerging field of radiomics. This phantom dataset was acquired on 4-8 CT scanners using a set of imaging parameters (e.g., reconstruction Field of View, Slice thickness, reconstruction kernels, mAs, and Pitch). A controlled scanning approach was employed to assess the variability in radiomic features due to each imaging parameter. This dataset will be useful to radiomic research community to identify a subset of robust radiomic features and for establishing the ground truths for future clinical investigations.

This Phantom dataset can be used for Feature variability assessment due to CT imaging parameters. These phantom scans can be used to identify a subset of robust radiomic features for future clinical investigations. Using this dataset, the numerical values of radiomic features can be cross-validated by other research groups using their own feature extraction tools.



## Acknowledgements

This dataset was submitted by Dr. Eduardo G. Moros and Dr. M Shafiq ul Hassan, USF. Special thanks to Moffitt Cancer Center where data were acquired.

### Data Access

#### Data Access

Click the **Download** button to save a ".tcia" manifest file to your computer, which you must open with the [NBIA Data Retriever](#). Click the **Search** button to open our Data Portal, where you can browse the data collection and/or download a subset of its contents.

| Data Type              | Download all or Query/Filter  |
|------------------------|---|
| Images (DICOM, 30.5GB) |   |

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### Detailed Description

#### Detailed Description

| Image Statistics       |        |
|------------------------|--------|
| Modalities             | CT     |
| Number of Participants | 251    |
| Number of Studies      | 251    |
| Number of Series       | 251    |
| Number of Images       | 57,839 |
| Images Size (GB)       | 30.5   |

### Citations & Data Usage Policy

## Citations & Data Usage Policy

Users of this data must abide by the [TCIA Data Usage Policy](#) and the [Creative Commons Attribution 3.0 Unported License](#) under which it has been published. Attribution should include references to the following citations:

### Data Citation

Shafiq ul Hassan M, Zhang G, Latifi K, Ullah G, Gillies R, Moros E. **Cardence Cartridge Radiomics Phantom CT Scans with Controlled Scanning Approach**. 2018. (DOI: <http://doi.org/10.7937/TCIA.2019.4124tz5g>)

### Publication Citation

Muhammad Shafiq ul Hassan, Geoffrey Zhang, Kujtim Latifi, Ghanim Ullah, Robert Gillies, Eduardo G. Moros. **Computed Tomography Texture Phantom Dataset for Evaluating the Impact of CT Imaging Parameters on Radiomic Features**. ([link to paper](#))

### TCIA Citation



Clark K, Vendt B, Smith K, Freymann J, Kirby J, Koppel P, Moore S, Phillips S, Maffitt D, Pringle M, Tarbox L, Prior F. **The Cancer Imaging Archive (TCIA): Maintaining and Operating a Public Information Repository**, Journal of Digital Imaging, Volume 26, Number 6, December, 2013, pp 1045-1057. DOI: [10.1007/s10278-013-9622-7](https://doi.org/10.1007/s10278-013-9622-7)

## Other Publications Using This Data

TCIA maintains [a list of publications](#) which leverage our data. If you have a manuscript you'd like to add please [contact the TCIA Helpdesk](#).

1. Shafiq ul Hassan M, Latifi K, Zhang G, Ullah G, Gillies R and Moros E. (2018) **Voxel size and gray level normalization of CT radiomic features in lung cancer patients**. Scientific Reports.
2. Shafiq ul Hassan M, Zhang G, Hunt D, Latifi K, Ullah G, Gillies R and Moros E, 'Accounting for reconstruction kernel-induced variability in CT radiomic features using noise power spectra', J. Med. Imag. 5(1), 011013 (2017). DOI: [10.1117/1.JMI.5.1.011013](https://doi.org/10.1117/1.JMI.5.1.011013)
3. Shafiq ul Hassan M, Zhang G, Latifi K, Ullah G, Hunt D, Balagurunathan Y, Abdullah M, Schabath M, Goldgof D, Mackin D, Court L, Gillies R and Moros E. (2017) **Intrinsic dependencies of CT radiomic features on voxel size and number of gray levels**. Med. Phys. 44(3), p-1050-1062 .
4. Paul R, Shafiq ul Hassan M, Moros E, Gillies R, Hall L, Goldgof D. (2018) **Stability of deep features across CT scanners and Field Of View (FOV) using a physical phantom**. Proc SPIE Medical Imaging Conference, February 2018, Texas, USA

Versions**Version 1 (Current): 02-27-2019**

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