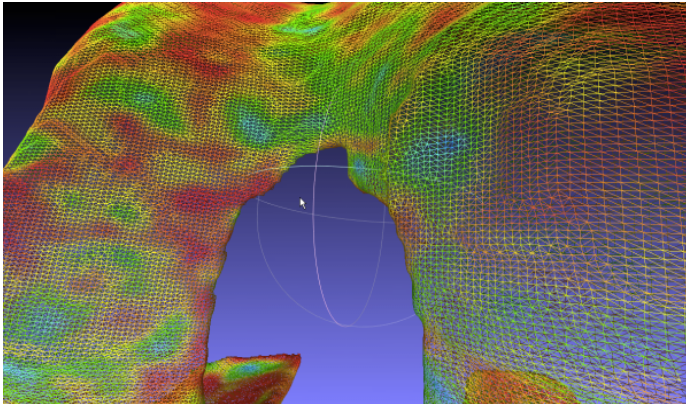


# Qmetrics Measures: More Data, More Objectively, More Efficiently

Automatically Generated 3D Renderings of MR Images Efficiently Provide More Data and More Objective Measurements than do Manual Renderings for Anatomical Studies, Medical Device Manufacturing, and Injury Recovery and Post-Surgical Monitoring.



## Image of Complex Morphological Measurements:

Qmetrics is uniquely qualified to extract detailed, exact measurements from MRIs. These measurements are made at thousands of points across a rendered surface. The result is a large population of data points, which can represent metrics such as articular cartilage thickness, curvature or hydration status. Qmetrics then provides a set of statistical descriptors of the measurement population, which may be useful for capturing widespread and focal changes.

Findings from these complex measurements may include:

|                                |                                   |
|--------------------------------|-----------------------------------|
| Thickness or Curvature         | Bottom 1 <sup>st</sup> Percentile |
| 5 <sup>th</sup> Percentile     | 1 <sup>st</sup> Quartile          |
| Mean                           | Median                            |
| Trimmed Mean                   | 3 <sup>rd</sup> Quartile          |
| Top 5 <sup>th</sup> Percentile | Top 1 <sup>st</sup> Percentile    |
| Skewness                       | Standard Deviation                |

## Big Data and Deep Learning in Medical Imaging

Much like retailers and internet companies use big data to collect information about the trends and predictive behaviors of their customers, Qmetrics' proprietary software has the deep learning capability to extract data and measurements from medical images that, with enough data gathered, may predict disease progression or track therapeutic benefits of treatments. The end result is our software's ability to develop 3D imaging biomarkers of disease onset and progression, as well as staging. This capability may also allow us to monitor therapy efficacy. The data mining and accumulation capability possible with complex 3D renderings far exceeds the capability to do so with conventional 2D image data sets. Our software driven analyses are capable of detecting subtle signal variations, textures or patterns not apparent to the human eye.

PHONE  
+1 585-301-4300

Traditionally, research, therapies and drug trials rely on subjective observational methods to score observations and organize data. The industry accepted scoring methods, WORMS and MOCART, K-L, etc. have been used effectively, **but ultimately rely on the opinion** of imaging experts scoring an image. Through its 3D Quantification process, all segmented structures are surface rendered to generate 3D models which allow for a multitude of **individual objective measurements**, minimizing subjectivity, and improving reproducibility and efficiency.

## Advanced Cartilage Measurements

Qmetrics can measure cartilage thickness to determine changes, including surface area with significant thickness change, proportion of surface area affected by significant changes, the proportion of population exhibiting significant change at each point across surface (within a multi-cohort study), and provide descriptive statistics for the measurements.

| Volume                        |                    | mm <sup>3</sup> |
|-------------------------------|--------------------|-----------------|
| Thickness                     | Mean               | mm              |
|                               | Standard Deviation | mm              |
|                               | 95% Percentil      | mm              |
|                               | 5% Percentil       | mm              |
| Curvature                     | Mean               | 1/mm            |
|                               | Standard Deviation | 1/mm            |
| T2                            | Whole T2 Mean      | ms              |
|                               | Whole T2 STD       | ms              |
|                               | Top T2 Mean        | ms              |
|                               | Top T2 STD         | ms              |
|                               | Middle T2 Mean     | ms              |
|                               | Middle T2 STD      | ms              |
|                               | Bottom T2 Mean     | ms              |
| Bottom T2 STD                 | ms                 |                 |
| Bone Cartilage Interface Area |                    | mm <sup>2</sup> |

| Regions                      |
|------------------------------|
| Femur                        |
| Lateral Femur Weight Bearing |
| Lateral Tibia                |
| Lateral Trochlea             |
| Medial Femur Weight Bearing  |
| Medial Tibia                 |
| Medial Trochlea              |
| Patella                      |

WEB  
www.qmetricstech.com

