



STUDY DETAILS



Pilot Study

1. Download the QIBA 3A Volumetric CT Study Experiment Description from the public QIBA 3A Study site
2. Download the QIBA 3A Volumetric CT Pilot Data and use the indicated lesions as desired for algorithm optimization (training)
3. Run volumetric algorithm or CAD tool clinic on the remaining Pilot Data lesions



Pilot Study (cont'd)

4. Send a signed facsimile copy of the Participation Agreement in PDF (Portable Document Format) to RSNA
5. The RSNA will send back an anonymized ID for sending in results
6. Anonymize results using the RSNA-provided ID to replace your organization's name where appropriate
7. Send your anonymized Pilot volume results to the RSNA



Pivotal Study

1. Upon notification, download the QIBA 3A Pivotal Data from the private QIBA 3A Study site
2. Run volumetric algorithm or CAD tool the Pivotal Data
3. Report your anonymized volume results using your ID to the RSNA





Participant Anonymization

- The RSNA will keep the participant's identity in confidence from the QIBA 3A Group and directly communicate individual results back to the participants
- RSNA will generate an anonymized ID for each participant
- Participants are responsible for anonymization of their submissions





Algorithm Optimization

- Use Pilot Data only
- During Pilot Study
 - Use one identified lesion per series with provided truth value
 - Remaining lesions used for analysis of variability to setup Pivotal Study
- After Pilot Study
 - Truth will be provided for all Pilot lesions
 - All Pilot lesions can be used for optimization prior to Pivotal



Information Participant Must Provide

- CAD tool/algorithm workflow name and description
- CAD tool developer, the algorithm used, and version number (if applicable)
- References to available publications
- Character and degree of user interaction with software
 - Use the VOLCANO'09 categories (<http://www.via.cornell.edu/challenge/>)
- Documented procedure used so that results are reproducible by trained users



What the QIBA 3A Group Will Do

- Analyze reported results by comparison to ground truth and other participating methods
- Provide participants with a study report within 3 months of the participant submission deadline
- Consult with individual participants on their results
- Report results at an open meeting
- Publish results
 - In an archival journal or conference proceeding
 - Without identifying participant scores



STUDY RESULTS



Analysis Strategy

1. Assess performance of each participant method with respect to selected descriptive statistics
2. Determine group values for descriptive statistics
3. Compose radar plots for group values and plot methods against it
4. As new methods become available, they can be evaluated with same reference data and compared to group values





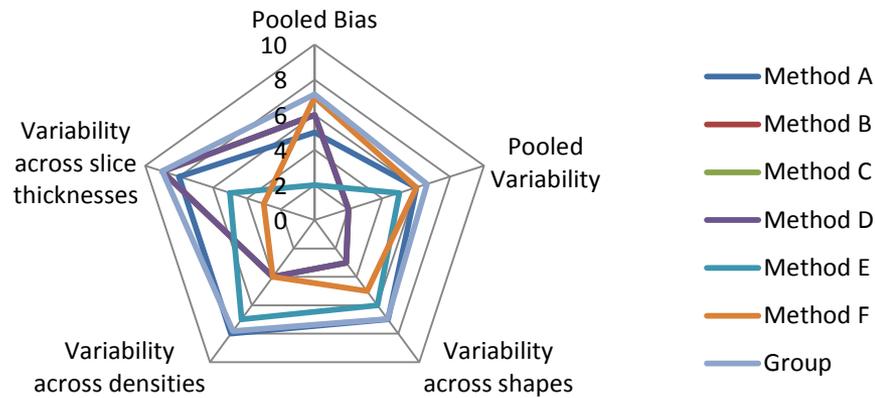
Performance Assessment

Volumetric Technique	Pooled Bias	Pooled Variability	Variability Across Shapes	Variability Across Densities	Variability Across Slice Thicknesses
Method A	5	6	7	8	8
Method B	6	2	3	4	9
Method C	6	2	3	4	9
Method D	6	2	3	4	9
Method E	2	5	6	7	5
Method F	7	6	5	4	3





Visualizing Method Performance Results

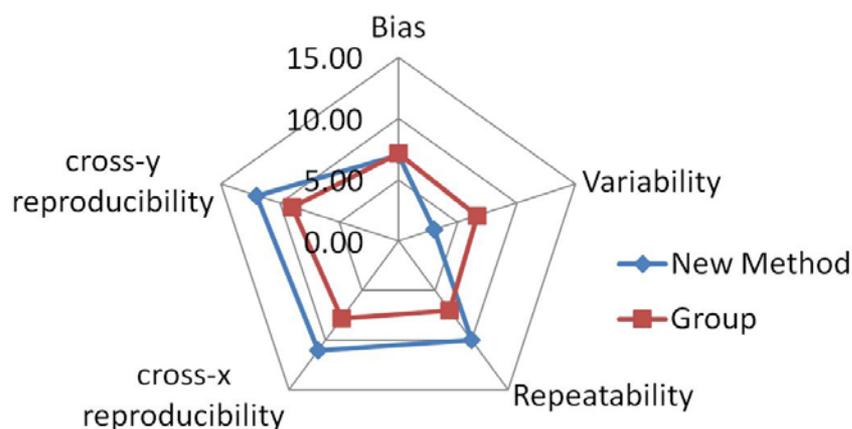
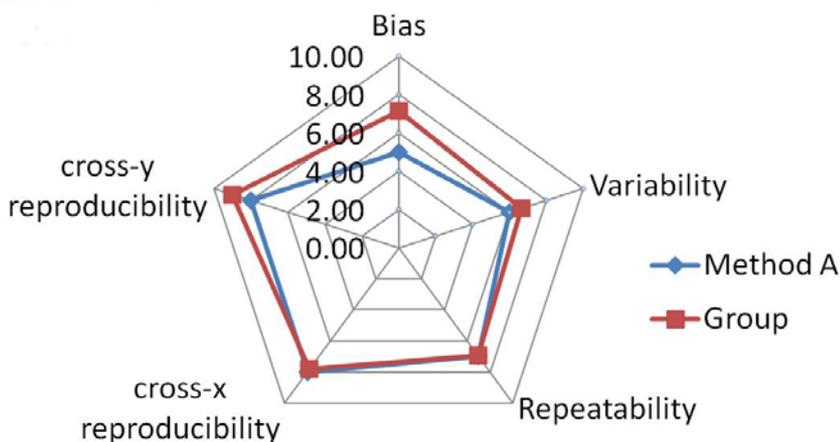




Compliance with a Claim

Method A is considered compliant with a claim based on the group value

The new method is not a valid method since it falls outside the group values

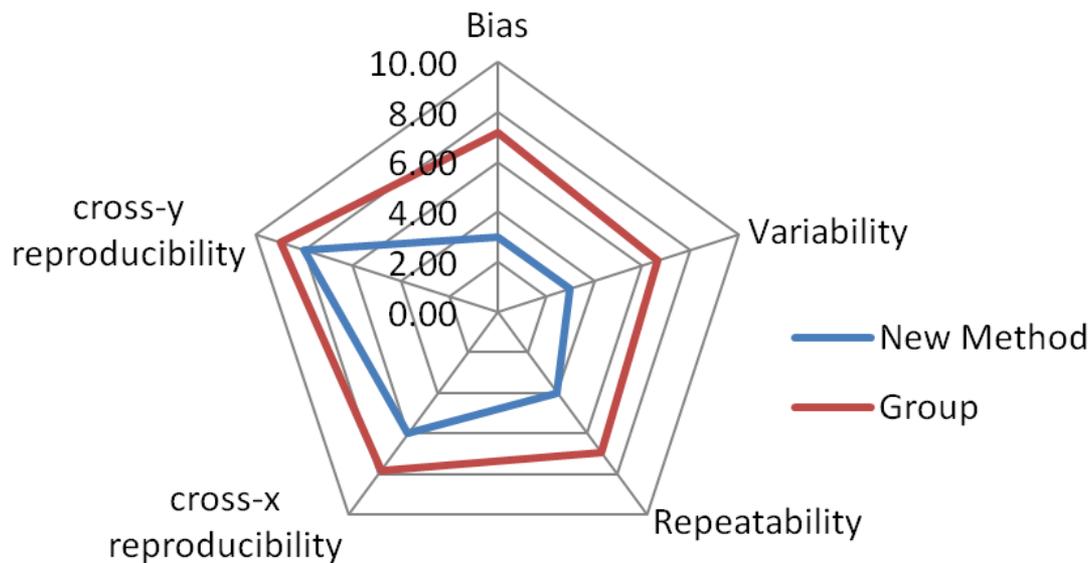


This new method could be evaluated in the future against the reference data





Improving the Claim



In the future, a new method may perform very well and help pave the way for an improved claim



FINAL DETAILS



Pilot Data is at QI-Bench Website



Flexible, **free** and **open source** software tooling to **develop** and **optimize** quantitative medical imaging.



Home

QI-Bench Wiki

About QI-Bench
Why QI-Bench
The Project
Acknowledgements
Contact Us

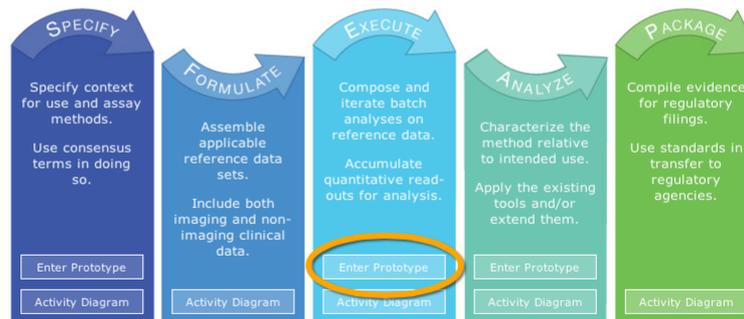
Resources

Download
For Users
For Developers
Issue Tracking
Lab Protocol
References
Licensing

Quantitative imaging applications such as imaging biomarkers advance the utility of medical imaging. They may detect and characterize disease, before, during or after a course of therapy. They may also predict the course of disease, with or without therapy.

A precondition for use is the demonstration of performance according to recognized descriptive statistics:

- In a defined patient population,
- For a specific biological phenomenon associated with a known disease state,
- With evidence in large patient populations,
- Externally validated.



Open-source informatics tooling used to characterize the performance of quantitative medical imaging as needed to advance the field. These tools may be deployed internal to an organization or used for collaborative work across organizations. The data on which they work may be accessible only to identified individuals, or more broadly in an open archive, to suit the specific project purpose.

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See here for more information about the web infrastructure.

<http://www.qi-bench.org>

Software and Systems Division
National Institute of Standards and Technology/U.S. Department of Commerce



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Compose and iterate **batch analyses** on **reference data**.
Accumulate **quantitative read-outs** for **analysis**.

Jump to a data, folder...

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Feed

	Gary Wernsing registered	3 minutes ago	<p>MIDAS integrates multimedia server technology with open-source data analysis and visualization clients. The server follows open standards for data storage, access and harvesting.</p> <hr/> <p>STATS</p> <p>5 users 3 communities 15 items</p>
	Patrick Reynolds registered	10 hours ago	
	Mike Sperling registered	11 hours ago	
	Andrew Buckler registered	12 hours ago	
	Michael Grauer added the community QIN	20 hours ago	
	Michael Grauer added the community QIBA	20 hours ago	
	Michael Grauer added the community C-Path	20 hours ago	
	Michael Grauer registered	20 hours ago	
	Michael Grauer registered	20 hours ago	
	Michael Grauer registered	20 hours ago	

MIDAS 3.1.3 by Kitware © 2011 - Generated in 0.117 s - Report bug



Creating Account



Join MIDAS
A powerful data management system

- Store access your data online.
- Manage and share your data.
- Highly secure.

[Learn more >](#)

E-mail
 Firstname
 Lastname
 Password
 Confirm Password

I read and accepted the [terms of service](#)

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Feed

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 15 items



Browse Communities



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Feed

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Find QIBA Community



Compose and iterate **batch analyses** on **reference data**.
Accumulate **quantitative read-outs** for **analysis**.

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Communities

C-Path

QIBA

QIN

ACTIONS

Create a community

INFO

3 Communities

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Download Data



Compose and iterate batch analyses on reference data.
Accumulate quantitative read-outs for analysis.

Jump to a data, folder...

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QIBA

Data | Feed | Shared to Members

Name	Size	Modified
Private (0)	Shared 0.0 KB	20 minutes
Public (0)	Shared 0.0 KB	20 minutes
Quantitative CT Modality (15)	Shared 3.4 GB	20 minutes
COPD - Asthma (0)	Shared 0.0 KB	20 minutes
Volumetric CT (15)	Shared 3.4 GB	20 minutes
1A (0)	Shared 0.0 KB	21 minutes
1B (0)	Shared 0.0 KB	21 minutes
1C (0)	Shared 0.0 KB	21 minutes
3A (15)	Shared 3.4 GB	21 minutes
Pilot3A (15)	Shared 3.4 GB	21 minutes
Prostate Output (0)	Shared 0.0 KB	21 minutes
FDA CDRH (0)	Shared 0.0 KB	21 minutes
QI-Bench Demonstrator (0)	Shared 0.0 KB	21 minutes
Quantitative MR Modality (0)	Shared 0.0 KB	20 minutes
Quantitative NM Modality (0)	Shared 0.0 KB	20 minutes

ACTIONS

- Leave the community
- View
- Download

INFO

Pilot3A
Created 11/14/2011

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Important URLs

- For registering and sending anonymized results:
 - qibachallenge@rsna.org
- For downloading Pilot Data:
 - <http://www.qi-bench.org/>
- Data Download instructions:
 - http://www.qi-bench.org/wiki/index.php?title=Manually_access_data
 - or
 - <http://tinyurl.com/QIBA3APilotData>





Schedule

- Participants

- Send Participation Agreement to RSNA by December 6th, 2011
- Receive anonymized ID and download Pilot data
- Report Pilot data results to the RSNA within one week of receiving the anonymized ID
- Download Pivotal Data and report results by April 15th, 2012

- QIBA 3A Group

- Make CT Pivotal Data set available by January 10th, 2012



Note

- RSNA will not begin sending IDs until after December 6th
- Requests or data that that sent to the RSNA between 12/22/11 and 1/2/12 will not be processed until January 3rd

