

Test on matRad_gammaIndex.m

I run a test aim to understand the difference in the results of this function for different interpolation input methods and dimensions. I add a test on local and global gamma index calculation. I impose a threshold of 1% and 1mm

```
threshold = [1 1];
```

Here we can see the differences between the new and the old programs

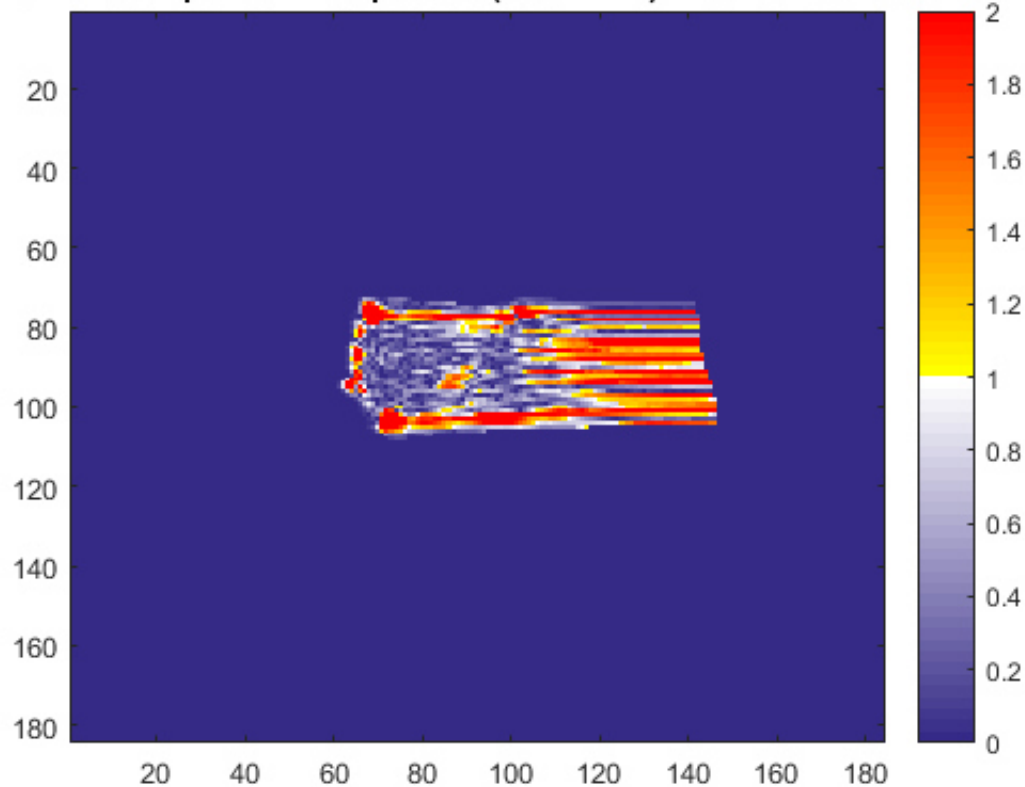
```
figure
[~,~,passrate_s] = matRad_gammaIndex(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.y ct
.resolution.z],...
    threshold,round(pln.isoCenter(1,3)/ct.resolution.z),'standard','global');

figure
matRad_gammaIndex_old(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.y ct.resolution.z],
    ...
    threshold,round(pln.isoCenter(1,3)/ct.resolution.z));
```

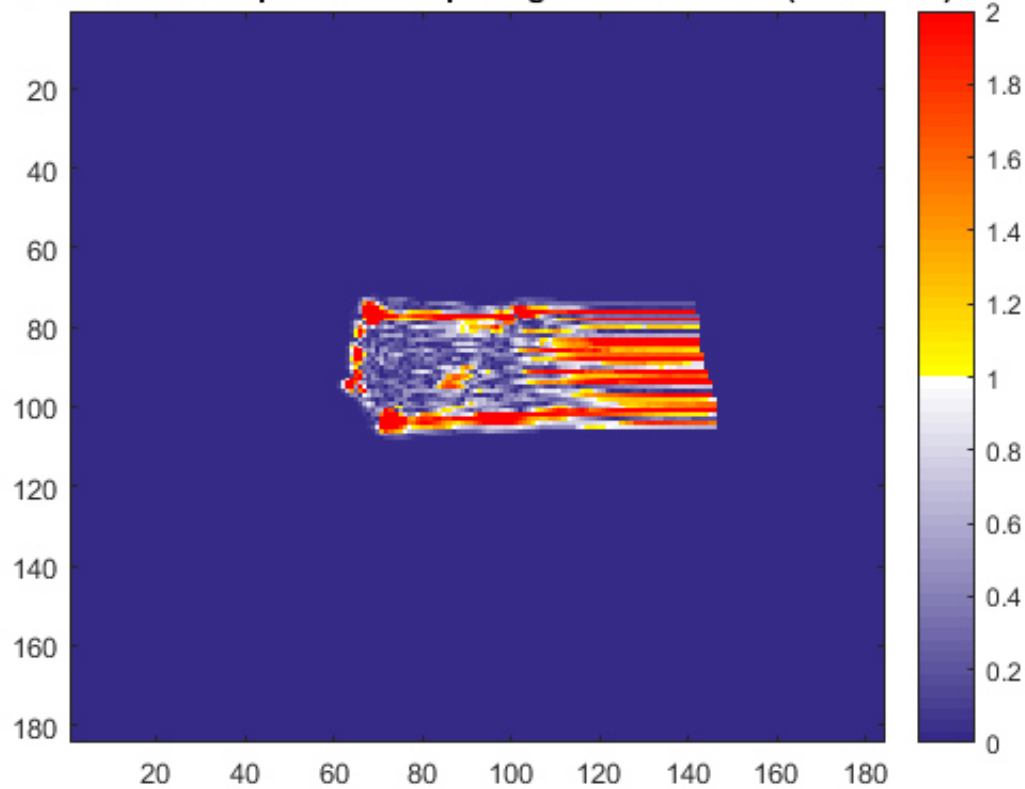
```
matRad: using gamme criteria 1[mm], 1[%].
```

```
.
```

48.101% of points > 1% passed (1% / 1mm) method: standard



48.101% of dose points > 1% pass gamma criterion (1% / 1mm)

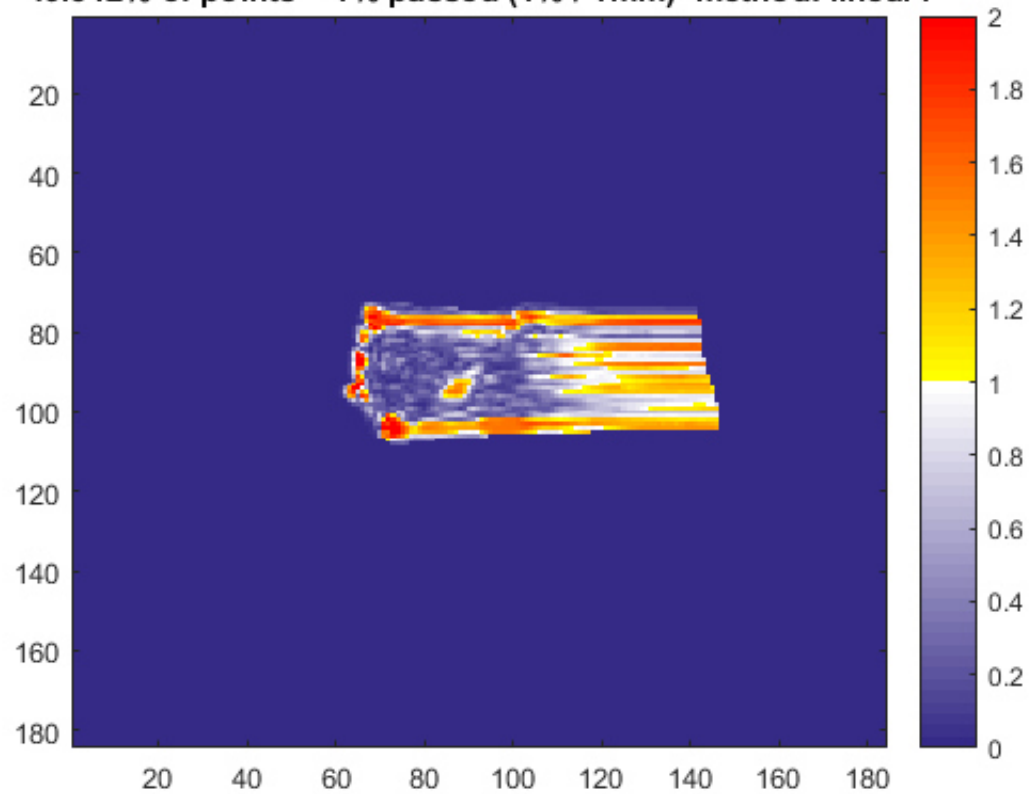


Here we check passrates with linear interpolation

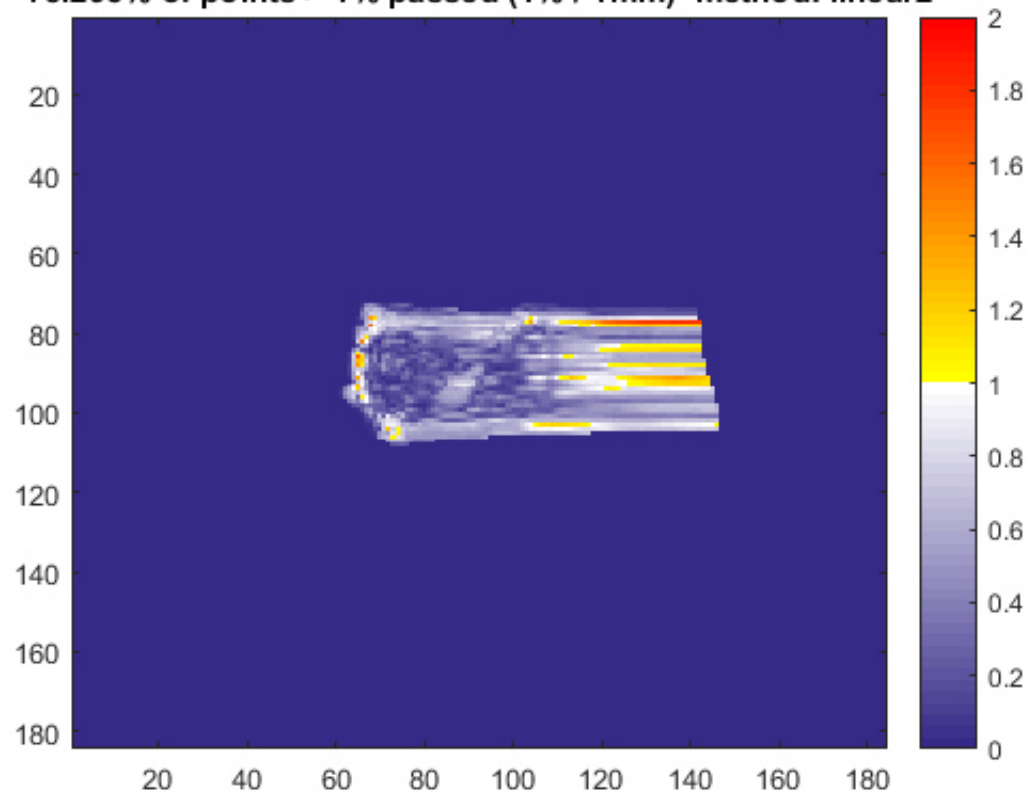
```
figure
[~,~,passrate_1(1)] = matRad_gammaIndex(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.y
ct.resolution.z],...
    threshold,round(pln.isoCenter(1,3)/ct.resolution.z),'linear1','global');
figure
[~,~,passrate_1(2)] = matRad_gammaIndex(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.y
ct.resolution.z],...
    threshold,round(pln.isoCenter(1,3)/ct.resolution.z),'linear2','global');
figure
[~,~,passrate_1(3)] = matRad_gammaIndex(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.y
ct.resolution.z],...
    threshold,round(pln.isoCenter(1,3)/ct.resolution.z),'linear3','global');
%figure
%[~,~,passrate_1(4)] = matRad_gammaIndex(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.
y ct.resolution.z],...
%    threshold,round(pln.isoCenter(1,3)/ct.resolution.z),'linear4','global');

figure
plot([0:size(passrate_1,2)],[passrate_s passrate_1])
```

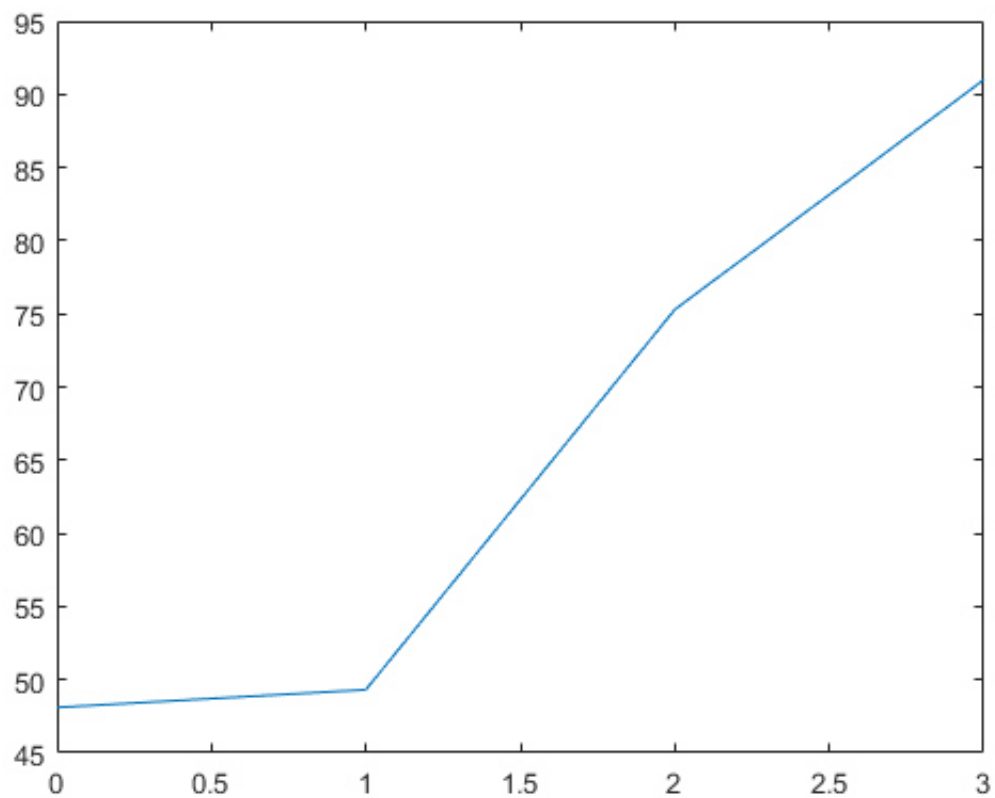
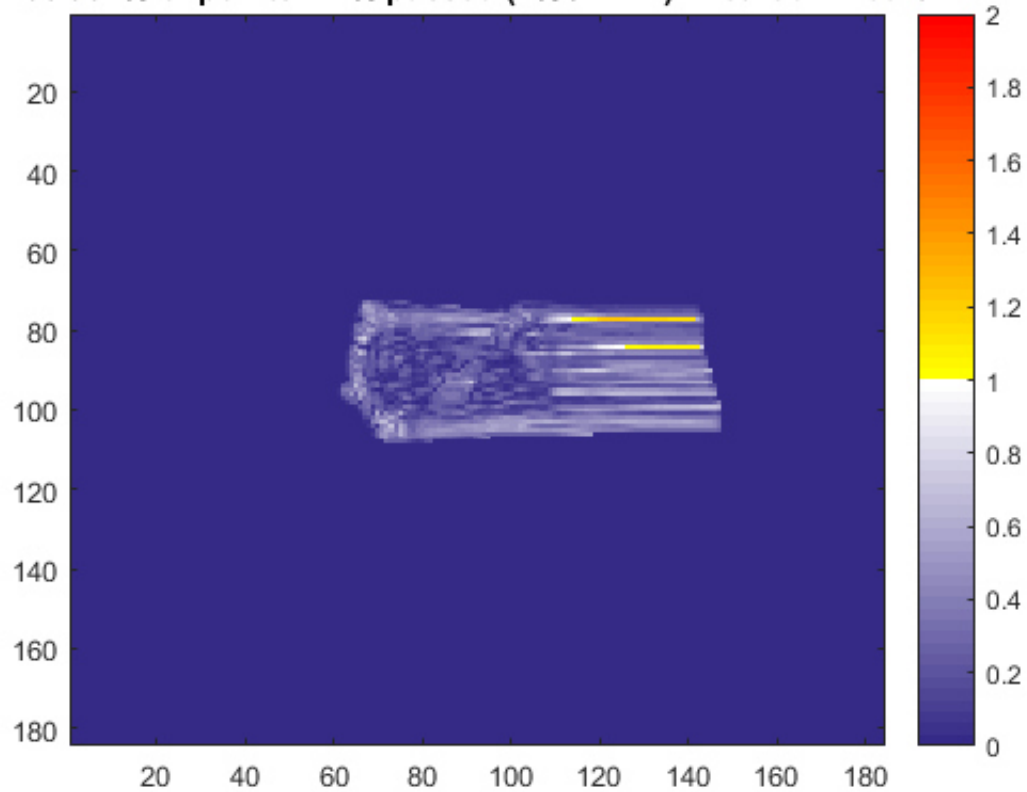
49.312% of points > 1% passed (1% / 1mm) method: linear1



75.293% of points > 1% passed (1% / 1mm) method: linear2



90.992% of points > 1% passed (1% / 1mm) method: linear3



I repeat the same with cubic interpolation

```
figure
[~,~,passrate_c(1)] = matRad_gammaIndex(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.y
ct.resolution.z],...
```

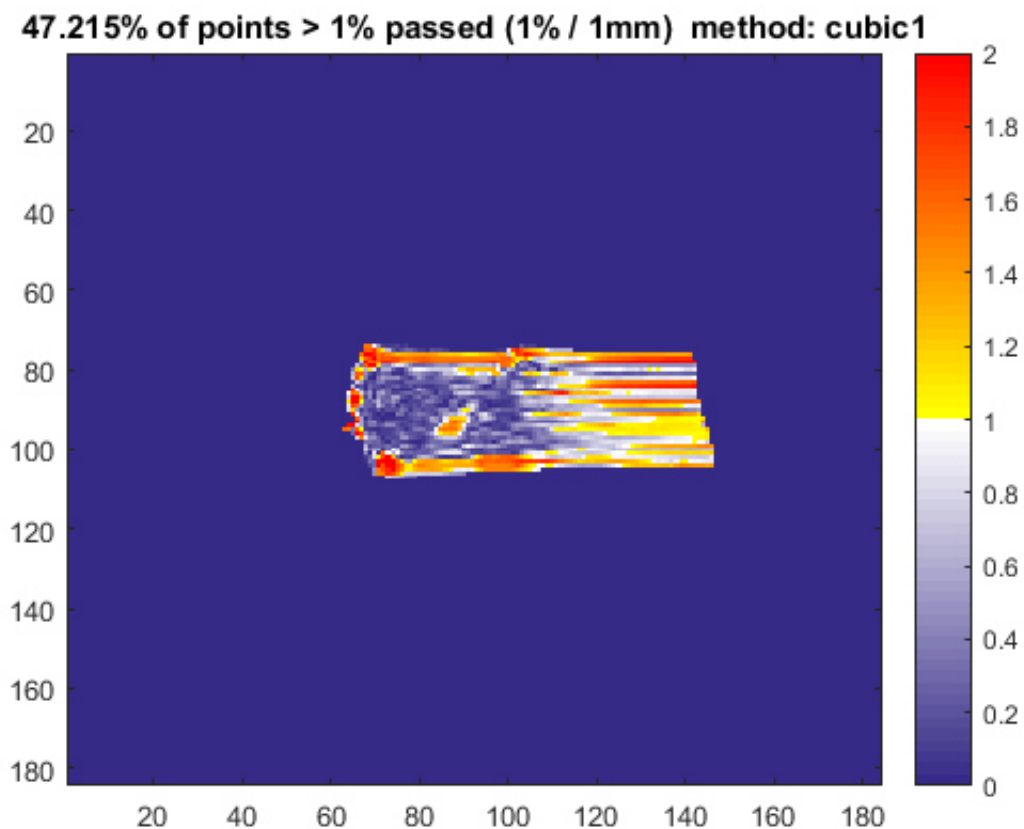
```

threshold,round(pln.isoCenter(1,3)/ct.resolution.z),'cubic1','global');
figure
[~,~,passrate_c(2)] = matRad_gammaIndex(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.y
ct.resolution.z],...
threshold,round(pln.isoCenter(1,3)/ct.resolution.z),'cubic2','global');
figure
[~,~,passrate_c(3)] = matRad_gammaIndex(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.y
ct.resolution.z],...
threshold,round(pln.isoCenter(1,3)/ct.resolution.z),'cubic3','global');
%figure
%[~,~,passrate_l(4)] = matRad_gammaIndex(dose_5mm,dose_3mm,[ct.resolution.x ct.resolution.
y ct.resolution.z],...
% threshold,round(pln.isoCenter(1,3)/ct.resolution.z),'cubic4','global');

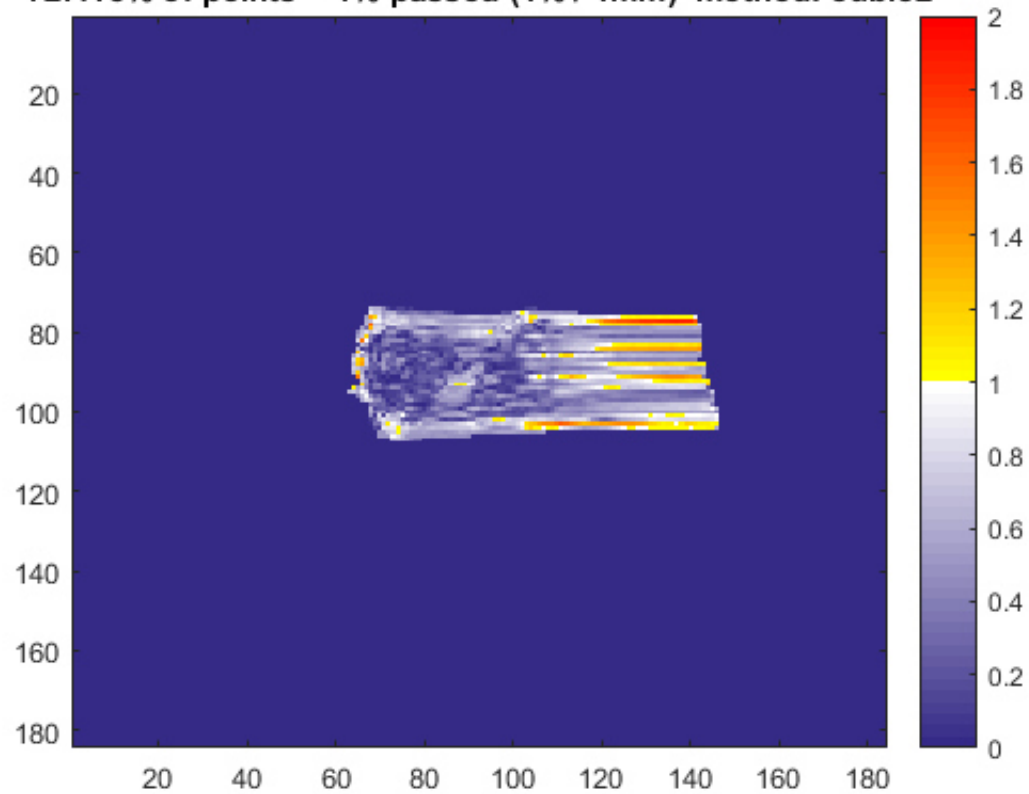
figure
plot([0:size(passrate_l,2)],[passrate_s passrate_l],'b')
plot([0:size(passrate_c,2)],[passrate_s passrate_c],'r')
legend('linear','cubic')

```

Warning: Ignoring extra legend entries.



72.415% of points > 1% passed (1% / 1mm) method: cubic2



88.933% of points > 1% passed (1% / 1mm) method: cubic3

