论文审稿的那些事

董彬
北京国际数学研究中心
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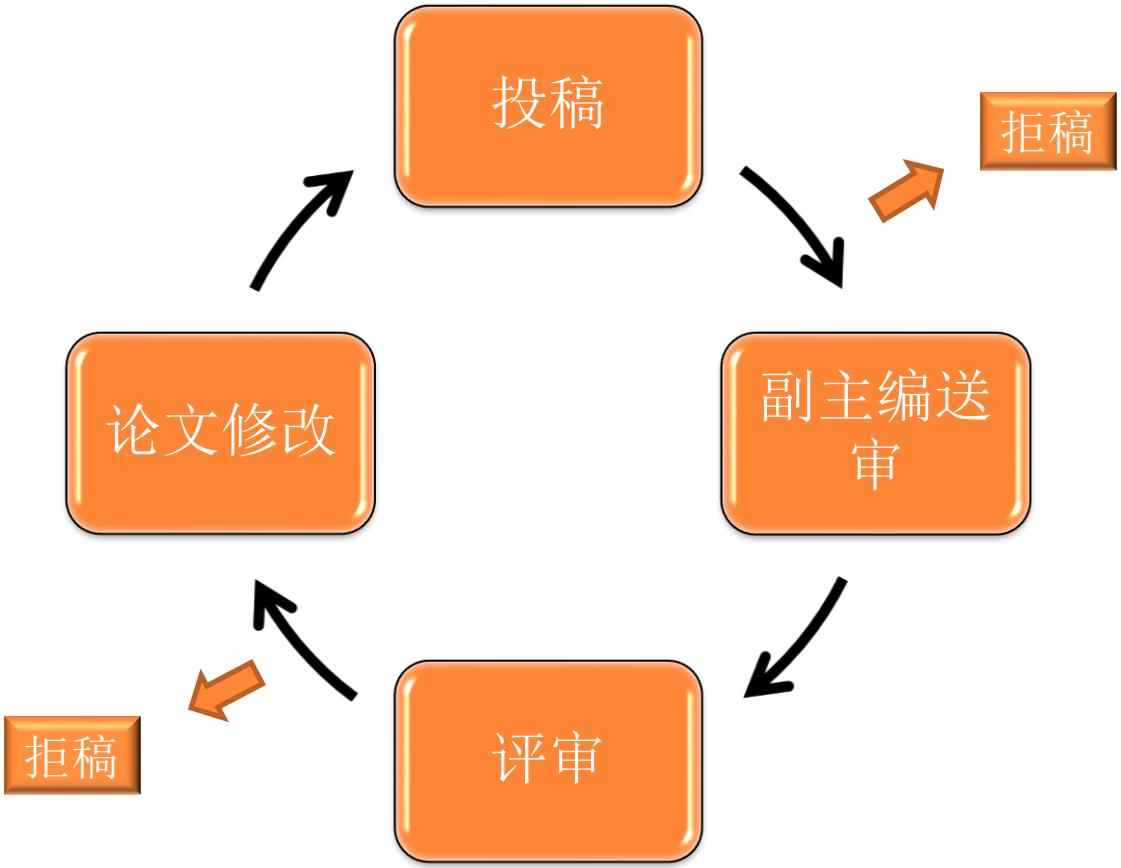
流程



审稿意见（大修）

- 期刊反馈信-附审稿意见

Manuscript Number: ACHA-14-164
Article Title: Sparse Representation on Graphs by Tight Wavelet Frames and Applications
Corresponding Author: Dr. Bin Dong
All Manuscript Author(s): Bin Dong, Ph.D.

Dear Dr. Dong,

Thank you for submitting your manuscript to Applied and Computational Harmonic Analysis. We have now received the results of the review process, comments which the Editors feel would improve your manuscript. We encourage you to consider these comments as you make an appropriate revision of your manuscript. The comments can be found at the end of this e-mail.

Please submit your revision online on or before Jul 04, 2015 by logging onto ACHA's Elsevier Editorial System as an Author:

http://ees.elsevier.com/acha/
Your username is: dongbin@math.pku.edu.cn

小修或者大修

The manuscript record can be found in your "Submissions Needing Revision" folder on the Main Menu. If you have forgotten your password, please access the "Forgotten Username/Password" link from the login screen or contact me for assistance.

When submitting your revised paper, please include a separate "Response to Reviewers" document that carefully addresses the issues raised in the below comments, point by point. This should be placed after the cover letter and before the revised manuscript when you order your uploaded files. You should also include a suitable rebuttal to any specific request for changes that have not been made.

To facilitate the electronic publication of your manuscript should it be accepted, we request that your manuscript text, tables and figure legend be submitted in an editable format (Word, WordPerfect, or LaTex only), and that all figures are uploaded individually as TIF or EPS files.

Highlights (optional)

Highlights consist of a short collection of bullet points that convey the core findings of the article and should be submitted in a separate file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point). See the following website for more information
http://www.elsevier.com/highlights

Thank you, and we look forward to receiving your revised manuscript soon.

Yours sincerely,

Ana Maldonado
Journal Manager
Applied and Computational Harmonic Analysis

审稿意见（大修）

****

Review Comments:

If no comments appear below, please use your Author credentials to log into ACHA online (http://ees.elsevier.com/acha/), where a PDF of the reviewers' comments can be downloaded.

文章内容总结

Reviewer #1: This manuscript presents a construction of tight wavelet frames on manifolds and discrete graphs, via the spectrum of the Laplacian operator.
The paper focuses in the theoretical construction, and also develops an efficient forward/inverse wavelet transform. Some numerical experiments are presented at the end of the chapter.

The paper is well-written, well-organized and easy to read, with decent amount of prior-work references. The mathematical derivations appear to be correct.
However, my main concern with this manuscript is that the author does not clearly specify his/her contributions. The main theoretical ingredients of the paper are the so-called Unitary Extension Principle and a fast wavelet transform algorithm based on Chebyshev polynomials. Both ingredients are well known. The authors makes an effort to present a unified theory for both continuous and discrete settings, but my impression is that this a minor contribution from what we already knew.

审稿人对技术部分的整体意见

Another remark/concern with the method is that it is not entirely constructive: how to choose the number of masks (r using the author's notation), and to what extent one can adapt these masks to the geometry of the data. For example, designing tight wavelet frames for images involves choosing a number of orientation bands. What is the equivalent notion of orientation that appears through the UEP? that is not clear by reading the paper, since we are reduced to choosing a tight frame in the real line (the spectrum of the laplacian).

Finally, the numerical experiment section is very weak (to the author's credit, he warns us that this is the case). We would like to see how his construction compares with other wavelet constructions (diffusion maps, the construction by Vandergyst, Gribonval et al, etc), and also we would like to see the method applied to standard benchmarks.

审稿人对论文整体意见

Overall, I found the paper to be a nice overview of the field with a nice wavelet construction, but I did not find enough novelty to encourage immediate publication. I strongly recommend highlighting in much greater detail the actual contributions of the paper and to extend the numerical experiment section.

审稿意见（大修）

Reviewer #2: Review of paper ACHA-14-164
Title: Sparse Representations on Graphs by Tight Wavelet Frames and Applications
Author: Bin Dong

SUMMARY

The author constructs a multi-resolution analysis (MRA) on a compact Riemannian manifold and exploits it to define tight wavelet frames.
A discretization of the manifold yields a graph, and the construction is used to define tight wavelet frames on such graphs.
Low-order Chebyshev approximations of the masks involved of the construction of these frames are exploited to obtain approximate fast transforms.
Numerical experiments with synthetic data (primarily obtained by mapping a 2D cartoon image to the unit sphere) are performed, showing that the resulting wavelet coefficients are sparse.
Denoising and semi-supervised clustering experiments are also provided.

GENERAL COMMENTS
The proposed wavelet construction is a straightforward extension of existing spectral graph wavelets [20] to compact Riemannian manifolds.
The main novelty seems to be the merging of this spectral construction with the Unitary Extension Principle, and a brief discussion of the transition from the continuum to the discrete.

On the one hand I welcome such a contribution, in the sense that constructing wavelets on manifolds and graphs is a hot topic in signal and data processing.
It is also important to consider fast transforms in this setting. Even if in my opinion the extension is relatively straightforward, it is also good in principle to document it in a reference paper.

审稿意见（大修）

On the other hand, I am not sure that the paper in its current form achieves this goal.
-While relatively easy to follow overall, it could certainly be better organized and make the main steps of the construction more transparent, as well as the main assumptions (see some suggestions in detailed comments).
-Moreover, it seems there remains some wholes in the proof that the constructed subspaces {V_n} actually form an MRA.
-While the author lists related state-of-the-art, there is essentially no serious discussion of how the proposed method relates or differs from such constructions.
-The numerical experiments are artificially obtained by mapping a 2D cartoon image to the unit sphere. This is very artificial, and would also call for serious comparisons with the many existing constructions of wavelets on the sphere, with a discussion of these pros and cons.

Given these general remarks, my general recommendation would be revise and resubmit.
To deserve publication, the revised manuscript would in particular need to meet the standards of ACHA in terms of
-fair and detailed positioning with respect to state-of-the-art, including in experiments
-relevance of the conducted experiments: when dealing with graph data, it is better to use real graph data on more irregular graphs than synthesizing it
-english usage: in particular, please carefully revise the use of articles.

DETAILED COMMENTS

The construction mimics many aspects of spectral graph wavelets [20]. Instead of the eigen-functions of the graph Laplacian, here the eigen-functions of the Laplace-Beltrami operator are used as a replacement for the Fourier basis. This allows defining translations and dilations in the Fourier domain, which is done implicitly in Section 2.2, and would deserve to be defined more explicitly.

With these basic operations in hand, the author borrows from the construction of framelet systems in R^d and introduces the equivalent of a quasi-affine system generated by r elements, as well as that of a refinable function and the associated family of nested 'shift-invariant subspaces' generated by dilations of a given refinable function.

Assuming sufficient decay of the Fourier transform of the elements of the generating system, the resulting system is claimed to be square integrable.
Decay assumptions such as (2.4) are standard in usual wavelet constructions. Here, they would deserve to be further discussed as it is not so evident here why they are "needed", and even why they are sufficient. In fact, as I read it, (2.2) and (2.4) imply that the coefficients of the expansion of \psi_{j,n,y}^M in the eigen-basis decay as O((\lambda_p)^{(m-1)/4 -s}. However (2.1) apparently only bounds \lambda_p from above, while we would need a bound from below to deduce a coefficient decay as O(p^{ [2/m] [(m-1)/4 - s] }). Does (2.1) in fact mean that such a bound from below holds ? If so it should be corrected. Assuming this is the case, the coefficient indeed belong to \ell_2 when s> (2m-1)/4.

Similarly, the definition of 'shift-invariant subspaces' V_n in (2.6) does not seem so 'naturally' derived from the standard definition. It is also not immediately obvious why (2.6) really requires the introduction of the considered space \ell_+(Z) of 'limited growth rate' coefficients. At first sight it would seem sufficient to have square integrable coefficients, since the proof of Prop 2.2 only requires ensuring that for any \hat{f} \in \ell_2(Z) we have f_n \in V_n. As far as I understand, it is only needed to ensure that \psi_{j,n,y}^M \in V_{n+1} in Section 2.2.2. A comment would be welcome near the definition of V_n to explain the need for this definition.

Moreover, the definition of the space \ell_+(Z) seems imprecise, in the sense that I expect the constant C to depend on the sequence c. This is in fact needed to have \ell_+(Z) stable by multiplication by a bounded sequence \hat{a}, as used in the proof of Proposition 2.1. In turn, this implies that in the proof of Proposition 2.3 the constant C should be C_n, hence it is unclear whether the bound on \hat{f}[p] tends to zero when n \to \infty. It is thus not clear whether Proposition 2.3 (and therefore Theorem 2.1) is true or not. This also suggests that the final elements of the proof of Theorem 2.2 where it is shown that P_{n_2} f \to 0 in L_2(M) when n_2 -> -\infty should be carefully checked: the weak convergence to zero of the Fourier series seems fine, but getting the strong convergence requires more care.

The definition of the operators P_{n,j} would perhaps deserve some words on why in fact the integral over M is well defined and square integrable.

In the examples of Section 2.3, it is in fact easy to check condition (2.8) which would also hold true with masks multiplied by an arbitrary unit magnitude complex number. However I am guessing that this may impact the decay conditions, which are not obviously satisfied. This seems related to the fact that above Example 3.1, maskes without the complex factors are considered, which becomes possible because of the finite number of products considered in the setting of Section 3. Could you comment ?

I found the section on discrete tight wavelet frames more difficult to read than the previous part. I welcome in principle the idea of carefully discussing the transition from the continuum to the discrete case. This begins well, but notational choices make it very soon hard to follow. In particular I think it would be better idea to keep distinct notations for f and f_d, for 'continuous frequencies' p and 'discrete frequencies' k. Conversely I would suggest keeping n to denote the scale, or at least to explicit the connection between n,l,L and J. Denoting J for the scale while j is the wavelet number is also confusing. As a result, above Theorem 3.1, it is not so clear that "perfect reconstruction from \alpha to f through W^T can be easily verified".

The numerical experiments are designed to illustrate that the proposed DTWFT maps certain piecewise smooth data on a graph to a set of sparse coefficients. Here, the considered data was built to be "piecewise smooth", but in general what would be the appropriate notion of smoothness on a graph ? How would it compare with notions associated to total variation regularization on graphs using a sparsity promoting penalty on finite differences ?

Finally, the following paper seems very related to the proposed construction. It should probably be discussed in relation to the state of the art.
[1] D. Geller and A. Mayeli, "Continuous wavelets on compact manifolds," Math. Z., vol. 262, no. 4, pp. 895-927, Aug. 2008.
and a discussion of the connections

SUMMARY OF TECHNICAL ISSUES
- (2.1) needs fixing: with the standard O() notation, (2.1) does not seem enough to guarantee that \psi_{j,n,y}^M is in L^2, or that V_n is a subspace of L^2. May be (2.1) should read p^{2/m} = O(\lambda_p) instead, i.e. \lambda_p \geq C p^{2/m} for some C>0 ?
-the definition of \ell_+(Z) and the proof of Proposition 2.3 need to be fixed.

SOME SUGGESTIONS

The flow would be easier to follow by first defining translation and dilation, then \phi_{n,y}^M and \psi_{j,n,y}^M), and finally X(\Psi).

At the end of the proof of Proposition 2.2, the fact that \hat{\phi} is bounded is combined with the fact that \hat{f} \in \ell_2(Z) to conclude.

The proof of Proposition 2.3 (if fixed regarding the 'constant' C_n, see above) needn't be by contradiction: given an arbitrary f in the intersection, you simply prove f = 0.

The discussion on discretization at the top of page 10 is a bit vague. Maybe start the first sentence of page 10 by "As further discussed below, we can understand discrete functions …"

Distinguishing between definitions 'a=b' (a defined as b) and equalities 'a=b' (equality between a and b) would be helpful, in particular in highlighting the introduction of definitions, e.g. \lambda_\max := \lambda_{K-1} (p 10).

OTHER

-the paragraph on the organization of the paper (end of page 2) is redundant with what has been written before and can be safely removed.
-section 2.1: please explain what happens to the Dirichlet boundary condition if the considered manifold has an empty boundary S.
-paragraph below (2.4): "one may change it to any s^{-n} with s>1": possible confusion between this dilation factor 's' and the smoothness 's' in (2.4).
-last paragraph p 4 'An MRA is s' -> 'is a'.
-p5 'the refinement … is generalized to' -> '… implies that'
-proof of Proposition 2.1: please unify notations, there is a mix between notations 'g' and 'u_p(x)' for a function of the variable x.
-Remark 2.2: a tight wavelet frames -> frame
-section 3.2: please explain that in the notation G = {E,V,w}, E \subset V^2 denotes the edge set E.
-p 10: the eigen-functions for an orthonormal … -> form an orthonormal
-p 10: I assume that the dilation scale J is chosen such that \lambda_\max := \lambda_{K-1} \leq 2^J \pi (\leq instead of '='). Similarly in section 3.4 J= \log_2(\lambda_\max/\pi) should be upper rounded ?
-p 11: are computed iterative -> iteratively ; are modified from the those -> from those
-p12: what is g(\xi) ? -> We start by approximating a given function g(\xi) …
-p12: (3.6) please introduce the notation for the diagonal matrices a^*_j(2^-l \Lambda)
-Fig 2: to for -> for ?

文章修改

- 收到审稿意见后
  1. 总结主要需要修改的地方：结构调整、更多数值实验、修改绪论、修改typos…
  2. 开始修改：从最容易的开始（修改typos、数值实验），最后修改绪论
  3. 修改后通读文章若干遍
  4. 写response to reviewers

Responses: Cover Letter

Dear Professor C. K. Chui,

I would like to submit my revised manuscript entitled "Sparse Representation on Graphs by Tight Wavelet Frames and Applications" to ACHA for considerations of publication. I have made major revision to the manuscript and I believe I have answered all the questions and concerns of the two reviewers. In particular, I have made the contributions of my work clear and greatly strengthened the numerical section. Please see the attached revision report for details.

Thank you very much for handling my manuscript again.

Regards,

Bin Dong

Associate Professor
Beijing International Center for Mathematical Research(BICMR)
Peking University
Email: dongbin@math.pku.edu.cn
Phone: +8610-62744091

Responses: To Reviewers

Revision Report

First of all, I would like to express my sincere gratitude to the reviewers for their comments and suggestions. I have made major revision to the manuscript based on their reviews.

Summary of the revision:

- Introduction: I have added more discussions on the relations and differences of the present work with some of the existing work. Contributions of the present work is made clear at the end of this section.
- Section 2 (Continuum): I have rearranged my presentation according reviewer #2's comments by starting with defining dilation and translations, followed by defining quasi-affine system and the characterization of tight frames. I have removed the section on MRA since it is nonessential. What is really essential and makes my approach different from existing work is the association of wavelet functions ψ_j with a mask a_j.
- Section 3 (Discrete): I have improved the presentation of this section; added a proof to Theorem 3.1; and added some numerical comparisons of the proposed fast transform (I changed the acronym to FFTG) with the spectral graph wavelet transform (SGWT) by Hammand et al. [1].
- Section 4 (Applications): I added an overview at the beginning of this section stating the modeling philosophy, and the relation between the proposed model with variational models such as TV models. I added comparisons of the proposed FFTG with the SGWT for both denoising and semi-supervised clustering problems. My conclusion is that FFTG is more effective than SGWT which indicates that the proposed representation is superior to that by Hammand et al. [1]. For clustering, I also added numerical experiments using two real data sets: MNIST and banknote authentication data set. Comparisons with state-of-the-art methods are included as well, which show that my approach is overall competitive with all these latest clustering methods and is superior to some of them.

Responses to some of the reviewers' comments (original comments by reviewers are in blue color).

Reviewer #1

... However, my main concern with this manuscript is that the author does not clearly specify his/her contributions. The main theoretical ingredients of the paper are the so-called Unitary Extension Principle and a fast wavelet transform algorithm based on Chebyshev polynomials. Both ingredients are well known. The authors makes an effort to present a unified theory for both continuous and discrete settings, but my impression is that this a minor contribution from what we already knew.

Please refer to the end of introduction for my statements on contributions of the paper. The main new ingredients of the theory of the present work is the association of ψ_j with a_j which has made the construction very simple and enables a rather unified theory for continuum and discrete setting. Also, masks are analytic and thus can be more accurately approximated by Chebyshev polynomial approximations. Moreover, the proposed representation is better in applications than the SGWT. Please see the new numerical experiments in the revised manuscript.

Another remark/concern with the method is that it is not entirely constructive: how to choose the number of masks (r using the author's notation),

The general rule of thumb for choosing the number of masks is to balance between quality of a certain model the representation is used in a given application, and computation efficiency. For example in Table 3, I have showed numerically that "linear" is the best in terms of restoration error and speed. However, when the data to be reconstructed is piecewise constant, "Haar" is better. To my best knowledge, there isn't any definite answer to the number of masks needed for a given construction of wavelet or wavelet frame systems, because the answer highly depends on (1) the specific application you are considering and (2) the classes of functions you are trying to recover.

修改后的论文

The optimization problem (2.8) can be solved by the split Bregman algorithm [29, 8] efficiently, which is also equivalent to the alternating direction method of multipliers (ADMM) [24, 26, 28]. The reconstructed phantom image by model (2.8), denoted by $\boldsymbol{u}_a$, is shown in Figure 1(b). Metal location in image domain can be robustly estimated by the summation of the high frequency wavelet frame coefficients (Figure 1(c)) followed by a simple thresholding. Then, the index of the metal trace in Radon domain, denoted by $\boldsymbol{\Gamma}$, can be identified by the projection of the indicator function associated to the metal location (Figure 1(d)).

Note that one may estimate the metal location by simply thresholding the initially reconstructed image. However, the metal artifacts may have a significant influence on the estimation if the threshold is not properly chosen. Thanks to the multiscale structure of the wavelet frame transform, we are able to robustly detect features from poorly reconstructed images based on the summation of high frequency tight framelet coefficients. This has already been observed in the past [18, 7]. In Table 1, we show that the quality of the reconstructed image using the proposed re-weighted JSR model is not very sensitive to the choice of the threshold (denoted by τ) on the summation of high frequency tight framelet coefficients.

3.1. The re-weighted JSR model. To reduce metal artifacts and reconstruct high quality CT images, we propose the following re-weighted JSR model

$$\min_{u,f} \frac{1}{2}||\mathcal{P}\boldsymbol{u} - \boldsymbol{Y}_s\boldsymbol{f}||^2 + ||\boldsymbol{\lambda}_1 \cdot \boldsymbol{W}_1\boldsymbol{u}||_{1,2} + \frac{\alpha}{2}||R_{\Gamma^c}(\boldsymbol{f} - \frac{\boldsymbol{Y}}{\boldsymbol{Y}_s})||^2 + ||\boldsymbol{\lambda}_2 \cdot \boldsymbol{W}_2\boldsymbol{f}||_{1,2}. \tag{3.1}$$

Here, $\boldsymbol{Y}$ is the measured projection data from the multi-chromatic X-ray source imaging system which is contaminated by Poisson noise, $\boldsymbol{W}_1$ is the Haar framelet transform (multilevel with $L = 3$), $\boldsymbol{W}_2$ is the piecewise cubic B-spline framelet transform (multilevel with $L = 3$), R_{Γ^c} is the restriction operator that extracts the projection data in the complement of metal trace, and $\boldsymbol{Y}_s = \max\{\mathcal{P}\boldsymbol{u}_s, \epsilon\}$ with a small $\epsilon > 0$. The division $\frac{\boldsymbol{Y}}{\boldsymbol{Y}_s}$ is defined point-wisely.

审稿意见（Round 2）

Manuscript Number: ACHA-14-164R1
Article Title: Sparse Representation on Graphs by Tight Wavelet Frames and Applications
Corresponding Author: Dr. Bin Dong
All Manuscript Author(s): Bin Dong, Ph.D.

Dear Dr. Dong,

Thank you for submitting your manuscript to Applied and Computational Harmonic Analysis. We are pleased to inform you that your paper is acceptable for publication provided minor revisions are made.

You will find suggestions below this letter which the Editors feel will improve your manuscript. We encourage you to consider these comments as you make an appropriate revision of your manuscript.

Please submit your revision online on or before Sep 03, 2015 by logging onto ACHA's Elsevier Editorial System as an Author:

http://ees.elsevier.com/acha/
Your username is: dongbin@math.pku.edu.cn

The manuscript record can be found in your "Submissions Needing Revision" folder on the Main Menu. If you have forgotten your password, please access the "Forgotten Username/Password" link from the login screen or contact me for assistance.

When submitting your revised paper, please include a separate "Response to Reviewers" document that carefully addresses the issues raised in the below comments, point by point. This should be placed after the cover letter and before the revised manuscript when you order your uploaded files. You should also include a suitable rebuttal to any specific request for changes that have not been made.

To facilitate the electronic publication of your manuscript should it be accepted, we request that your manuscript text, tables and figure legend be submitted in an editable format (Word, WordPerfect, or LaTex only), and that all figures are uploaded individually as TIF or EPS files.

Highlights (optional)

Highlights consist of a short collection of bullet points that convey the core findings of the article and should be submitted in a separate file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point). See the following website for more information
http://www.elsevier.com/highlights

Applied and Computational Harmonic Analysis features the Interactive Plot Viewer, see: http://www.elsevier.com/interactiveplots. Interactive Plots provide easy access to the data behind plots. To include one with your article, please prepare a .csv file with your plot data and test it online at http://authortools.elsevier.com/interactiveplots/verification before submission as supplementary material.

Thank you, and we look forward to receiving your revised manuscript soon.

With kind regards,

Ana Maldonado
Journal Manager
Applied and Computational Harmonic Analysis

审稿意见（Round 2）

Reviewer #1: The author made a major revision that hugely increased the quality of exposition and clarity.
I am willing to accept the manuscript since my major concerns have been addressed; now I understand better its contributions, and the numerical section has also been quite improved.

I have only a minor comments relating to how the new introduction is structured. The fourth paragraph -- starting with "Given a compact manifold (...) " , seems too technical for the introduction. It introduces a lot of notation and terminology (refinement masks, refinement function, etc) that is not that well known, and my impression is that this paragraph could be better used to give a broader, higher level description of the main results.

Reviewer #2: The paper has been substantially revised and the main issues of the first version have been fixed. More extensive experimental results with comparisons with state of the art have been provided.
Overall I am happy to recommend it for publication. Below are suggested minor corrections at the editor's discretion.

There remains a number of more minor english usage issues (in particular the use of determinants 'a'/'the'/none) that the author should consider fixing in the final version, in particular in the abstract.
The acronym FFTG seems badly chosen since it evokes the FFT rather than a wavelet transform, maybe FTWTG would be better (Fast Tight Wavelet Transform on Graphs).
I would also suggest toning down point (3) page 4 on the differences with [1], since the notion of the "simplicity" of a characterization of tight wavelet frames can be very subjective.
The notation '= O()' is clear on p 5 but somewhat unusual, I believe the symbol 'a_n \asymp b_n' is more appropriate, meaning 0 < c = \liminf |a_n/b_n| \leq \limsup |a_n/b_n| = C < \infty.
In Theorem 2.1, it may be useful to assign an equation number to the assumption |\hat{a}_0(\xi)-1| \leq C |\xi| near the origin. When referring to assumption (2.14), it seems that this assumption should also be explicitly reminded.
While Section 3.2 is clearer, I still think the author should carefully check the chosen notations to avoid clashes. For example, n was used in the continuum setting to denote a scale, so it would be better to index the vertices with a different letter. As far as I see it L the number of considered discrete scales, but this is not stated explicitly.
It is still not clear why / how one can ensure that N = \log_2 \lambda_{K-1}/\pi is an integer.
On page 17, the claim that "FFTG is in fact faster" for cubic splines is exaggerated: for practitioners the actual computation time sometimes matters, not only the computation time per output coefficient. The high redundancy of the proposed construction can in fact be both an advantage, as explained by the author, and a drawback, in terms of computation. A short discussion on how one could tune this redundancy might be interesting.

Minor typos:
p4: any algorithms -> any algorithm; Hammonda -> Hammond
p17 and elsewhere: graphes -> graphs.
p19: Denosing -> Denoising

再次修改投稿后

- Final decision

ACHA <acha@elsevier.com> 9/18/15

to dongbin, me, ckchui

Manuscript Number: ACHA-14-164R3
Article Title: Sparse Representation on Graphs by Tight Wavelet Frames and Applications
Corresponding Author: Dr. Bin Dong
All Manuscript Author(s): Bin Dong, Ph.D.

Dear Dr. Dong,

We are pleased to inform you that your manuscript referenced above has been accepted for publication in Applied and Computational Harmonic Analysis.

Many thanks for submitting your fine paper to Applied and Computational Harmonic Analysis. We look forward to receiving additional papers from you in the future.

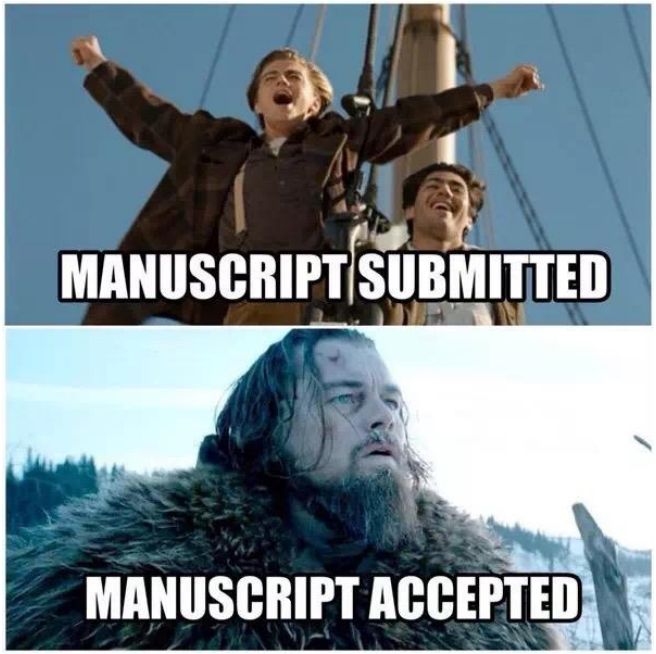
With kind regards,

C. Chui
Editor-in-Chief
Applied and Computational Harmonic Analysis

历程回顾

Time line:

- 2014.11 Submission
- 2015.05 Review (R1)
- 2015.06 Re-Submission
- 2015.08 Review (R2)
- 2015.09 Re-Submission
- 2015.09 Acceptance



This is one of the smoothest cases!

论文被拒收的原因

- 不够数学

This is an interesting work whose aim is to exploit some existing models in order to create a robust algorithm for aneurysm capturing in 3D. However, even if the results seem to be interesting, the paper suffers from the lack of originality from a methodology point of view:

- the main contribution of the paper corresponds to the new evolution PDE given in equation (3.5). This equation just corresponds to a modify version of an existing model (proposed by Zhu and Chan in 2003). This modified PDE does not corresponds to the result of the minimization process of an energy criterion (or if it is the case, it has to be discussed in the article). Thus, this step is rather empirical, without any mathematical foundations.

- The authors justified the modifications they applied to equation (2.3) in paragraph 3. They show from one single example that the PDE given in (2.3) is more sensitive to the initialization in 3D than in 2D. The results given in this demonstration are interesting. However, it seems excessive to draw general conclusions on the behavior of an algorithm from just one single example. This does not prove that the behavior described in this paragraph corresponds to the behavior of the algorithm in general. Thus, here again, this step is rather empirical, without any mathematical foundations.

- The same remarks as above can be made for the justification of the use of the Gaussian curvature term into the final evolution PDE.

Due to the above comments, SIAM is not the proper journal for this paper. We encourage the author to submit in a more applicative journal such as IEEE TMI or MEDIA

论文被拒收的原因

- 审稿人意见两极

META-REVIEW QUESTIONS

1. Please recommend a decision for this submission.
Reject

3. Please provide a meta-review for this submission. Your meta-review should explain your decision to the authors. It should augment the reviews and communicate how the reviews, author response, and discussion were used to arrive at a decision. Dismissing or ignoring a review is not acceptable unless you have a good reason for doing so. If you want to make a decision that is not clearly supported by the reviews, perhaps because the reviewers did not come to a consensus, please justify your decision appropriately, including, but not limited to, reading the submission in full and writing a detailed meta-review that explains your decision.
This is currently an important area. A corollary to that is that this is an extremely crowded area. It is thus even more important to see clearly the novelty of the contribution, in order to argue for its significance. Also, as the area is often largely driven by experiments, trying to understand clearly what are the issues behind the observed experimental results is particularly important. Some of the reviewers find the empirical results convincing, though this is not a uniform view.

论文被拒收的原因

- 和期刊契合度不高

Dear Prof. Dong,

Thank you for your manuscript, "Randomized Algorithms For High Quality Treatment Planning in Volumetric Modulated Arc Therapy," submitted for possible publication to SIAM Journal on Imaging Sciences.

I regret to inform you that though your manuscript is very interesting, we will not be able to accept it for publication. The journal has to reject the article because it is outside the purview of SIIMS since it does not involve imaging. On the plus side, one reviewer was generally positive about the article in general, and we include that review. It would be a useful review to help you revise it for a more appropriate journal. I believe it is a good article on an interesting topic, and I believe it is well suited to a journal that has articles in that area such as "Medical Physics."

The SIAM Journal on Imaging Sciences aims to publish the most significant work going on in the mathematical and formal aspects of imaging science, and the results of your paper are not in this area.

We are sorry that the outcome of the editorial process has not been more favorable. Nonetheless, your interest in this journal is much appreciated. We hope you will consider the journal for future submissions.

Best regards,

Todd Quinto
++++++++++++++++++++++++++++++++
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论文被拒收的原因

- 文章太长，没有人愿意审稿

Dear Prof. Dong,

I am writing about your paper

Image Restoration: Wavelet Frame Shrinkage, Nonlinear Evolution PDEs, and Beyond
by Bin Dong
Qingtang Jiang
Zuowei Shen

The editor handling your paper has contacted several potential referees who are experts in the field, but so far no one is willing to write a detailed report on your paper.

We believe this is largely due to the length of your paper.

论文被拒收的原因

- 特殊原因

>Dear Zuowei,
>
>Thank you for considering CPAM as a place for this interesting paper.
>
>Normally I would encourage submission to CPAM. However we have
>accumulated
>a much-too-large backlog (partly due to publication of some issues
>marking
>the Courant Institute's 75th Anniversary, containing review articles by
>CIMS faculty). As a result, we are (temporarily) turning back almost all
>"outside" papers. This policy will probably last about a year. Therefore,
>I suggest you send this paper elsewhere.
>
>Please do not forget us, though. A year from now the situation should
>be different, and I hope that you'll continue to think of us as a place
>to
>publish your best work.
>
>Regards,
>
>Bob Kohn

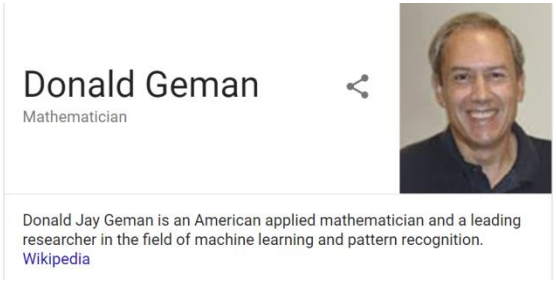
论文被拒收的原因

- 缺乏创新
- 有严重错误，参考人看不到短期修复的可能
- 抄袭
- 期刊契合度问题
- 文章太长
- 某些特殊原因（由主编说明）

会议 V.S. 期刊

- 期刊论文
  - 审稿时间较长（3-12个月）
  - 作者有充分时间根据审稿人意见修改论文
  - 对给定问题深入、广泛的讨论
- 会议论文
  - 审稿时间较短（1-2个月）
  - 基本不需要大修，甚至不需要修改
  - 点子要（看起来）闪亮
  - 对写作要求较高
  - 死线（deadline）是第一生产力
  - 深度和广度上欠缺

Ten Reasons Why Conference Papers Should Be Abolished (Nov 2007)



1. The Epidemic of Communication
   - Most papers turn out to be early "progress reports".
2. Superficial Reviewing
   - Unreasonable to suppose that people reviewing order ten papers for at least one conference per year will apply the same effort as in reviewing a few journal papers.
3. Journals Work
   - There just aren't that many ideas or results that are so important as to warrant speedy publication.
4. Noisy Personnel Decisions
   - Important career evaluations are increasingly based on the number of papers appearing in certain conferences.
5. Irrational Exuberance
   - Do we really believe that every few months there are several hundred advances worthy of our attention?

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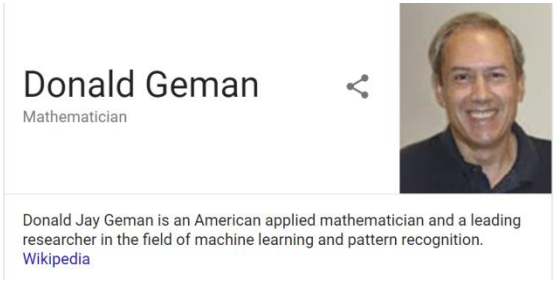

6. Preferential Treatment
   - Holed up in an airport hotel room to make final decisions over a weekend, it is simply human nature to favor the ones you are face-to-face with.
7. Limited Accountability
   - Excessive anonymity in the chain of communication.
8. Poor Scholarship
   - Lack of serious literature review. As a result, ideas are re-invented and re-cycled and credit is randomly distributed. This is more likely to be corrected in journal reviewing.
9. Diminished Real Productivity
   - Our young colleagues are spending as much or more time writing up their "results", and searching for "minimum publishable units" and catchy names, as they are thinking intensely and creatively.
10. The Fog of Progress
    - Given all the noise due to the sheer volume of papers, the signal, namely the important, lasting stuff, is awfully difficult to detect.