**SACNAS Conference – Dallas, Texas**

**October 14 -15, 2009**

**Evaluation of Pre-Conference Workshop**

**An Introduction to Wavelets and Their Applications in Digital Image Processing**

**Patrick Van Fleet and Catherine Bénéteau**

The wavelets workshop ran as a 4 hour pre-conference math workshop at the 2009 SACNAS conference, which was held in Dallas, Texas. The instructors of the workshop were Patrick Van Fleet and Catherine Bénéteau; they alternated between presenting the material and working with students on hands-on activities. The goal of the workshop was to present some of the beautiful mathematics connected to discrete wavelet transformation by taking an “applications first” approach, in particular applications connected to image processing.

There were approximately 60 students in attendance, who sat at round tables accommodating 8 students. There was no possibility for the students to have access to technology, so the organizers of the workshop planned paper and pencil hands on activities.

At the end of the workshop, students were asked to fill out a 10-question form in order to evaluate their experience at the workshop. All answers to questions were on a scale of 1 to 5, with 1 indicating “strongly disagree” and 5 indicating “strongly agree”. The questions together with the averaged response (for 54 students) were the following.

1. The workshop objectives were clearly stated. **(4.8 out of 5)**
2. The content of the workshop was interesting to me. **(4.6 out of 5)**
3. I understood the material presented in the workshop. **(4.3 out of 5)**
4. After this workshop, I would like to learn more about discrete wavelet transforms and image processing. **(4.2 out of 5)**
5. The hands-on activities of the workshop helped me to understand the material. **(4.3 out of 5)**
6. The difficulty level of the workshop was appropriate. **(4.5 out of 5)**
7. The pace of the workshop was appropriate. **(4.4 out of 5)**
8. I would recommend this workshop to a friend. **(4.5 out of 5)**
9. The instructors of the workshop were well-prepared. **(4.9 out of 5)**
10. The instructors of the workshop were helpful during the hands-on activities. **(4.7 out of 5)**

The last question of the evaluation form was the following:

On the back of this form, feel free to comment about things you thought worked well at the workshop, things you thought did not work well, suggestions you have for this particular workshop if it is offered again, or any other aspect of the workshop.

From the average response rates above, the students seemed very satisfied with the workshop. Overall, their interest level was high, the workshop seemed interesting to them, and they enjoyed the hands-on activities. Out of the 54 students who filled out the evaluation form, 24 students made additional comments in question 11. The overwhelming majority of these comments were positive, indicating a high level of interest and in particular interest in the applications. A few students felt that the difficulty level of the workshop was too high, although others commented that the workshop pace was too slow. A sampling of comments follows:

1. “Our instructors were very well prepared and we were able to share in their excitement about the topic. Additionally, their teaching expertise and methods of presenting applications first made the session very enjoyable.”
2. “The workshop was educational and intellectually stimulating. The presenters were well-prepared and clearly knew the material. Something pretty good was the energy of both professors that denoted passion for the topic. I will definitely like to learn more about this particular topic, especially about the development of the code and their motivation to continue their research in this topic. I will also like to know more about applications.”
3. “Perhaps a recommendation on topics a student would want to brush up on before attending. I liked this workshop very much, but it was beyond me.”
4. “I really like the hands-on experience that this workshop offered, it helped me to understand the main concepts and ideas of the topic. Great workshop experience overall!”
5. “I enjoyed the subject matter, however it is difficult to concentrate without coffee or snacks. I did appreciate the sandwiches and the chips. I did like the fact that a basic development of topic started each session. The application with the FBI was fascinating. Thank you!!”
6. “We needed more helpers to go faster.”
7. “ Everything worked well. Any suggestion would be adjusting the difficulty level.”
8. “I believe if the speakers add technology to accelerate the understanding (using matlab) will be helpful to go over the Haar transforms.”
9. “I found the presentation very easy to follow, even though I had never learned anything about wavelets before. The talk was very accessible to me.”
10. “I liked how the applications of wavelets were explained and not just the theory.”
11. “The short exercises were helpful in grasping the material. The applications were interesting, but perhaps more diagrams can used to explain.”
12. “This was one of the few math talks I have been to that was actually accessible to me. Thanks!”
13. “The use of applications of the topic were interesting. I like the way of showing the live examples and then the theory. It makes it easier to understand.”
14. “Excellent. Wish all math conferences had a mini-course like this!”
15. “I like the interactive portion of the workshop and the presenters were very helpful and personable. I also liked seeing the applications first followed by the math. I think overall the presentation was interesting and easy to follow.”
16. “It was a bit tough for me to follow at times, but very interesting topic!”