

**My Wife (Pat Welle) is an amazing photographer**



You can see more at [patwelle.com](http://patwelle.com)

# We don't get back together for a long time...

Mon	Tue	Wed	Thu	Fri	Sat
28/10 18:15-20:15					
4/11 18:15-20:15				8/11 8:15-10:15	9/11 9:00-11:00
11/11 18:15-20:15	today				
Super Computing 2024 in Atlanta Georgia					
25/11 18:15-20:15	Our next time together				30/11 9:00-11:00
2/12 18:15-20:15				6/12 8:15-10:15	
9/12 18:15-20:15				13/12 8:15 - 10:15	
16/12 18:15-20:15					

2 weeks

# Here are some ideas for what to do while we are apart

- Use everything we've learned about parallelization and architecture to make matrix multiplication run as fast as you can:
  - The program `mm_testbed.c` generates a matrices with a known product (so we can test for correctness). It uses `mm_utils.c` and the matrix multiplication itself is in `mm_ijk.c`.
  - Create your own `mm_ijk.c` (call it `mm_yourShortName.c`) and make it as fast as you can. Send me the output from `mm_testbed` and your function when you are done. My email address is:  
tim@timmattson.com
- Think about your class project. Remember:
  - This is a five to 10 minute presentation. It's supposed to be fun and not a HUGE burden.
  - It must be driven by your interests ... what about our topic is interesting to you personally.
  - It's OK to do this alone or as part of a group.

# Examples for the class project

1. Think about a scientific problem YOU REALLY LOVE. Which of the seven dwarfs do people use when working on that problem? Prepare a short description of that work you can share with the class.
2. If you love writing software, implement the Barnes Hutt algorithm. How can you validate that it is correct? Can you parallelize it? Or maybe leave it serial and we'll parallelize it as a class project?
3. If you love computer engineering, pick a novel architecture (such as the Cerebras AI accelerator, <https://cerebras.ai/>) and create a presentation to summarize it for the class. What (if any) of the computer architecture features do they use?
4. If you love music, pick a popular song and write lyrics that address a topic in HPC or scientific computing. As examples, <https://www.youtube.com/watch?v=awjAphkiXwE> or <https://www.youtube.com/watch?app=desktop&v=whreNeJGCWk> or <https://www.youtube.com/watch?v=i6rVHr6OwjI>
5. If you love quantum chemistry, what is the largest molecular system ever simulated on an HPC system. Describe it briefly for the class.
6. What is the carbon footprint of global climate model. Maybe if we want to reduce global warming, we should stop simulating it?