

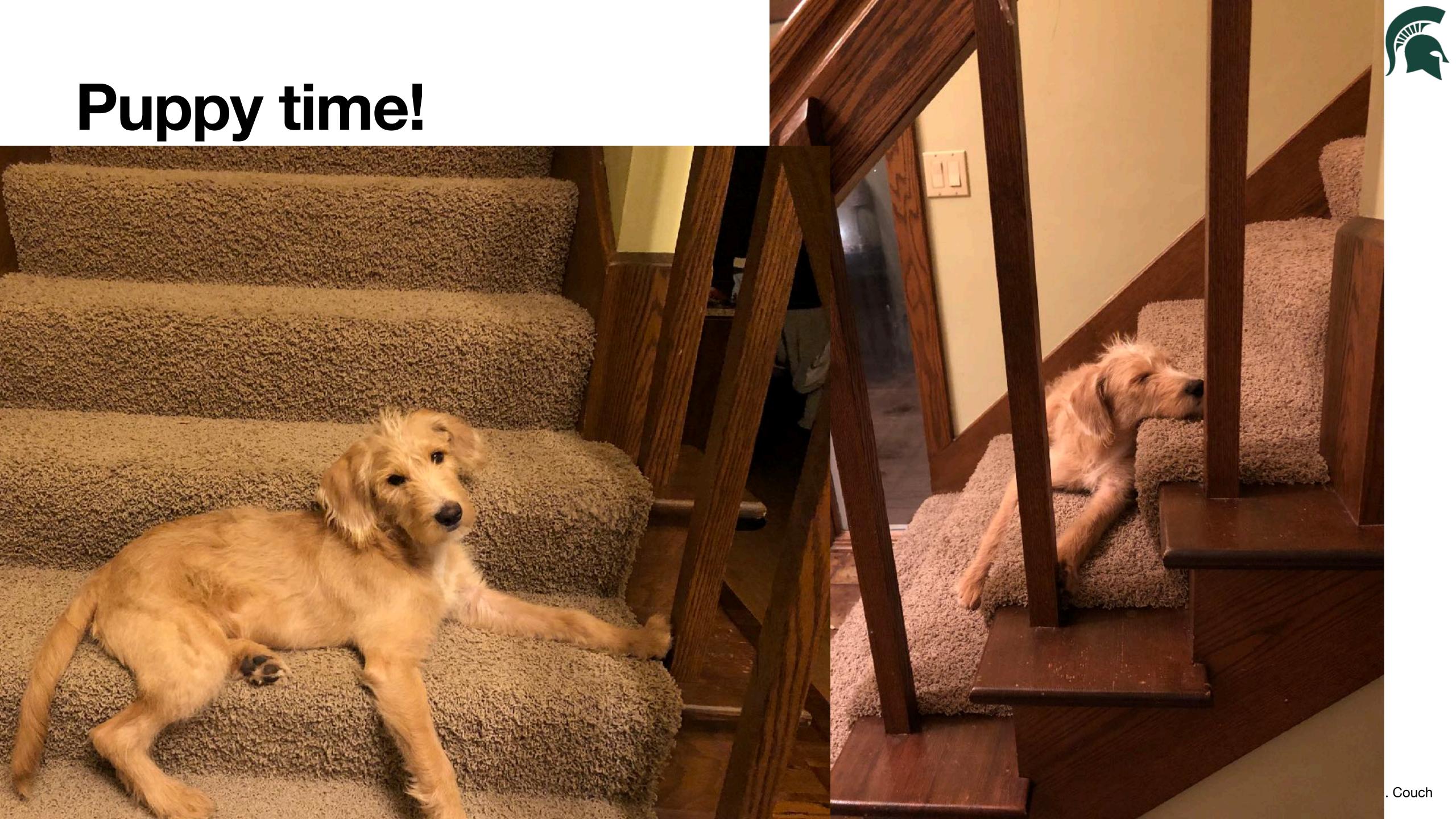
# Lecture 21: OpenMP SIMD

CMSE 822: Parallel Computing Prof. Sean M. Couch



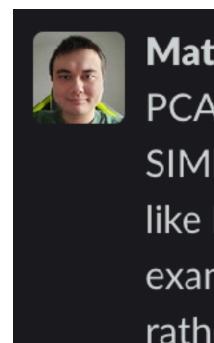
# Today's Plan

- If you haven't already, join the Slack group for your chosen project type.
- In-class work on OpenMP SIMD.





## PCA Questions



#### Matthew Zeilbeck 12:46 AM

PCA19: How do we actually use the OpenMP directives to implement SIMD? Also, what determines safelen? Is it partially hardware-determined, like by the size of the vector width? The book didn't explain the few examples it provided, and the video was more focused on lower-level stuff rather than OpenMP.





The Safelen clause specifies that no two concurrent iterations within a SIMD chunk can have a distance in the logical iteration space that is greater than or equal to the value given in the clause. The parameter of the Safelen clause must be a constant positive integer expression. The Simdlen clause specifies the preferred number of iterations to be executed concurrently unless an if clause is present and evaluates to *false*, in which case the preferred number of iterations to be executed concurrently is one. The parameter of the Simdlen clause must be a constant positive integer expression.



### PCA Questions



#### **Daniel Jacob Griffin** 10:17 AM

PCA19: In the book it says, "If your SIMD loop includes a function call, you can declare that the function can be turned into vector instructions with declare simd." Can you explain this a little more?