Parallel Programming
Course Introduction

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Oregon State University
Computer Graphics

This course is all about parallel programming on the **desktop** and in a distributed environment (e.g., cluster) for applications that you are attempting to accelerate to improve user interaction and simulation and computational performance

The goals of this course are to leave you **"career-ready"** (i.e., both work-ready and research-ready) for tasks that require desktop parallelism, both on a CPU and a GPU. CS 475/575 topics include:

• Parallel computing: types, limitations
• Moore's Law, Amdahl's Law
• OpenMP
• Synchronization issues in parallel computing
• Cache issues in parallel computing
• SIMD
• GPU computing
• CUDA
• OpenCL
• MPI

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This course is being taught by:

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> Welcome! I'm happy to be here. I hope you are too !

Mike has had over 30 years experience in the computer graphics and high performance computing worlds. He has taught over 100 university classes to a total of almost 9,000 students. He has also taught over 100 professional short courses around the world.

In his spare time, he … oh, wait, there is none. Well, that's not quite true. In the spare time, he likes to dabble in 2-12 outreach, particularly where he can apply computer graphics to it. Does that count as "spare time" or "more work"? ☺

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Sadly, I am a compulsive email checker. That is the best way to reach me. However, I am not necessarily a compulsive email-*returner*. I prioritize my email returns. Please do not email me over small things that you really can either look up or figure out for yourself (like "When is the assignment due?"). Those emails get low priority. The really serious concept email questions get high priority.

I am a compulsive telephone ignorer. That is not a good way to reach me consistently. I will return messages, but it might take a while. Email is better. This is not meant to be a disrespectful thing. It's just that I am in and out of my office a lot, and when I am in, there are usually students in there with me.

I will hold Office Hours over the Internet on Zoom. I have my own "Zoom-Room". Its URL is:

https://oregonstate.zoom.us/s/8340727662?pwd=b01tZ0hJUzdHNUtrdTRqSkdwbG4zdz09

If it asks for a passcode, use: ZeldaDog

It's only available when I am there to "open it up" (not unlike a real room). To use this, you will need a microphone and speakers. I recommend a headset. They pickup less background noise than a microphone does, and it gives you better sound than a speaker does. There are some nice ones on Amazon because of the popularity of gaming headsets. Just be sure to get one that is compatible with a plug on your computer.

I would love it if you also have a webcam, because then I can see you and get to know you a little better. However, this is optional. And, because I often do these Office Hours from home, I sometimes get a little "help" from the following characters …

Callie

Callie is very shy. If you came over, she would hide under a bed. But, through Zoom, she won't know you are there. You might see her climbing around on my desk.

Curie

Curie is an 8-week old Corgi puppy. She is very young and is still trying to figure out her place in the world. Holding her is like holding a stuffed animal.

Zelda

Zelda is a 3-year-old Yellow Lab/Golden Retriever mix with bundles of energy. I am pretty sure you will see her run by the webcam during some home Office Hours. Her "puppy dog eyes" get her lots of snack food.

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There is no textbook for this class. The course material will consist of handouts and notes taken while watching the videos.

If you need further reference material, there are a bunch of links at the end of the class Resources site. You're not required to go look at any of these. They are just some links that I have found useful. They are there if you need them.

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