

# MSCS MESS

Department of Mathematics, Statistics, and Computer Science  
St. Olaf College, Northfield, MN 55057  
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## Monday's Colloquia

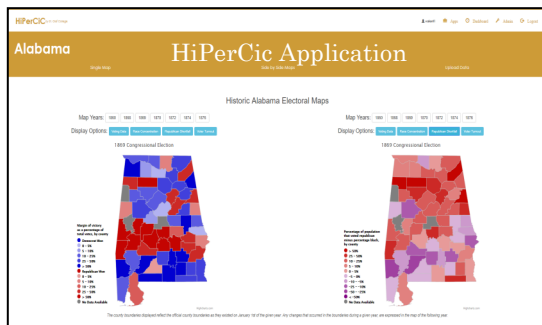
Title: Tests and Containerized Deployment for HiPerCiC 3 Applications

Speaker: Hugo Valent

Date: Monday, Sept. 25 | 3:30 p.m.

Place: RNS 310

**About the talk:** Web applications sometimes crash, are complex to maintain, and do not always deliver what the user wants. Is there a way to facilitate their maintenance, enhance their stability, and serve the user better? In my talk, I will describe how Test-Driven Development (TDD) and Continuous Integration and Deployment (CI&D) accomplish these goals for HiPerCiC 3 web applications. In the TDD software development approach, tests are written before any new code. A programmer develops and modifies new code to pass the tests. In the daily practicing of CI&D, an application is automatically tested in an isolated software environment and deployed only if all of its tests pass. The tests help document the code, CI&D brings faster user feedback, and the application's



stability is constantly verified. I will show how the TDD and CI&D methods produce reliable and easily maintained web applications that serve the user well.

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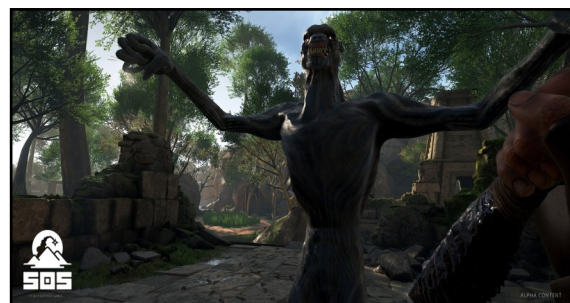
Title: Not All Fun & Games: Challenges of Professional Game Development

Speaker: Omar Shehata

Date: Monday, Sept. 25 | 3:30 p.m.

Place: RNS 310

**About the talk:** A video game is a very unique piece of software in that it often combines computer graphics, linear algebra, high performance algorithms, UI, AI and a plethora of other fields. Games have historically pushed the boundaries of computing (and are the reason we have blazing fast GPU's available for machine learning research). In this talk, based on



In Game Screenshot

my experience this summer working at Outpost Games, we'll explore the many challenges faced in modern AAA game development, and the rapidly evolving industry tools overcoming them.

## Friday's Research Seminar

Title: An Introduction to Hypercyclicity

Speaker: David Walmsley

Date: Friday, Sept. 29 | 3:40 p.m.

Place: RNS 204

**About the talk:** It is a remarkable fact that every complex differentiable function can be uniformly approximated on any compact subset of the complex plane by certain derivatives of a *single* such function. Said differently, there exists a complex differentiable function whose successive derivatives form a dense sequence in the space of all complex differentiable functions. This is an example of *hypercyclicity*, where the iterates of a natural action (in this case, the iterates of the derivative) applied to a vector produces a dense sequence. In this introductory talk, we will give several historical examples of hypercyclicity and discuss a useful criterion that can be used to show that this phenomenon of hypercyclicity exists.

**About the Speaker:** I just graduated from Bowling Green State University in Ohio, completing a Math PhD in the area of analysis. After doing some undergraduate research in the area of group theory, I went to graduate school thinking I wanted to be an algebraist. One semester of graduate level algebra convinced me otherwise. I grew up in St. Cloud, Minnesota, and it is nice to be surrounded by beautiful Fall scenery once again. In my free time, I like to go to the gym, eat pizza, and play with my two young nieces. I also spend  $\epsilon$  amount of time watching and playing video games, where  $\epsilon$  is greater than zero.

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### It's Picture Day!!

It's that time of year again! Dust off your dad's suit or your mom's pantsuit, MSCS department pictures are here! Pictures will be taken of all Mathematics, Statistics, and Computer Science majors on **Wednesday September 27th, 3-5 p.m. & Thursday October 5th, 4-6 p.m.** to be put up on the Wall of Fame (2nd Floor RMS).

### Ice, Ice Baby...Doo-da-do-do-do...

Mathclub/PME will be serving FREE ice cream from **7:30-8:30 p.m. on Tuesday September 26, sixth floor RMS.**

### Weekly Theorem

**Horse Theorem**– Horses have an infinite amount of legs.

**Proof.** Horses have an even number of legs. Behind they have two legs and in front they have fore legs. This makes six legs, which is certainly an odd number of legs for a horse. But the only number that is both odd and even is infinity. Therefore horses have an infinite number of legs. ■

Quinton Neville, Editor  
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