



Masters of Science in Game Design & Development

Degree Proposal Overview

B. Thomas Golisano College of Computing and Information Sciences

Rochester Institute of Technology

Summary as of November 2005

Version 1.0.3

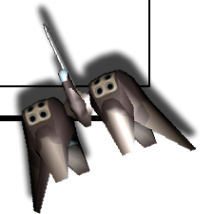
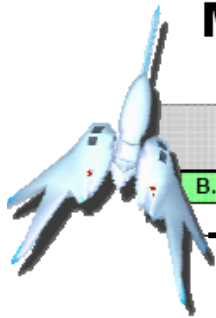
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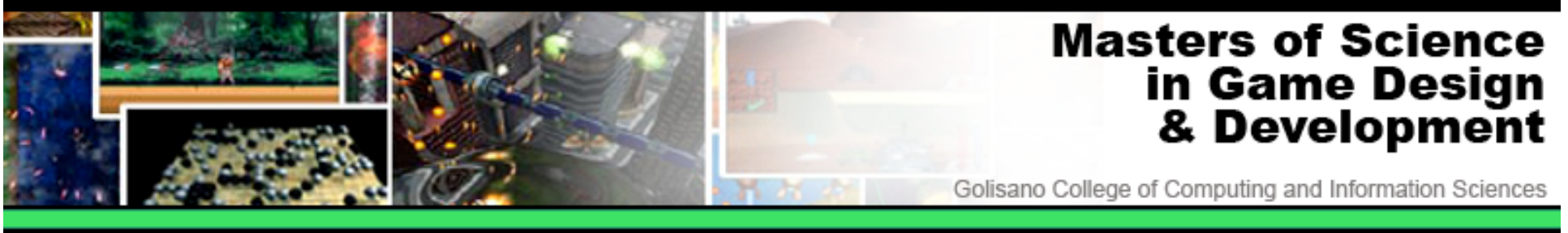
Andrew Phelps

Department of Information Technology

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Department of Information Technology





Introduction

The Masters of Science in Game Design & Development is proposed to meet the needs of students who aspire to be practicing professionals in the field of game development or related areas.





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Overview of the Industry

On the global scale, the sale of video game software reached 25.4 billion in 2004.

75% of all American head-of-households are game players.

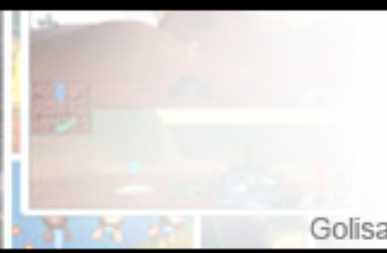
Estimates place the number of jobs in this industry in North America at approximately 100 million.

Current projections forecast a global growth rate in software sales of 16.5% compounded annually through 2009.

The average age game player is 30, with significant markets from pre-school through seniors.

Of the known player-base for all online, computer, and console games in the US, approximately 57% of players are male, and 43% female.





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Industry Needs

Typical employees hired from traditional computing majors need a minimum of 6 months re-training to work with artists and game production teams.

Our degree seeks to reduce this retread time, and offer graduates prepared to hit the ground running!



Building on Success

We currently offer a “**Concentration in Game Programming**” which is available across GCCIS to majors in CS/IT/SE (now in its 4th year)

Our students are currently employed at **Electronic Arts, Linden Labs, Microsoft, Sony PlayStation of America, Vicarious Visions, and many more!**





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Challenges of the Industry

• Traditional Computing

- Game Engine Engineering
- Programming / Compilers
- Graphics and Display
- Memory Management
- Sound Engines
- Artificial Intelligence
- Database Representation
- User Interface Design
- Custom Input Hardware

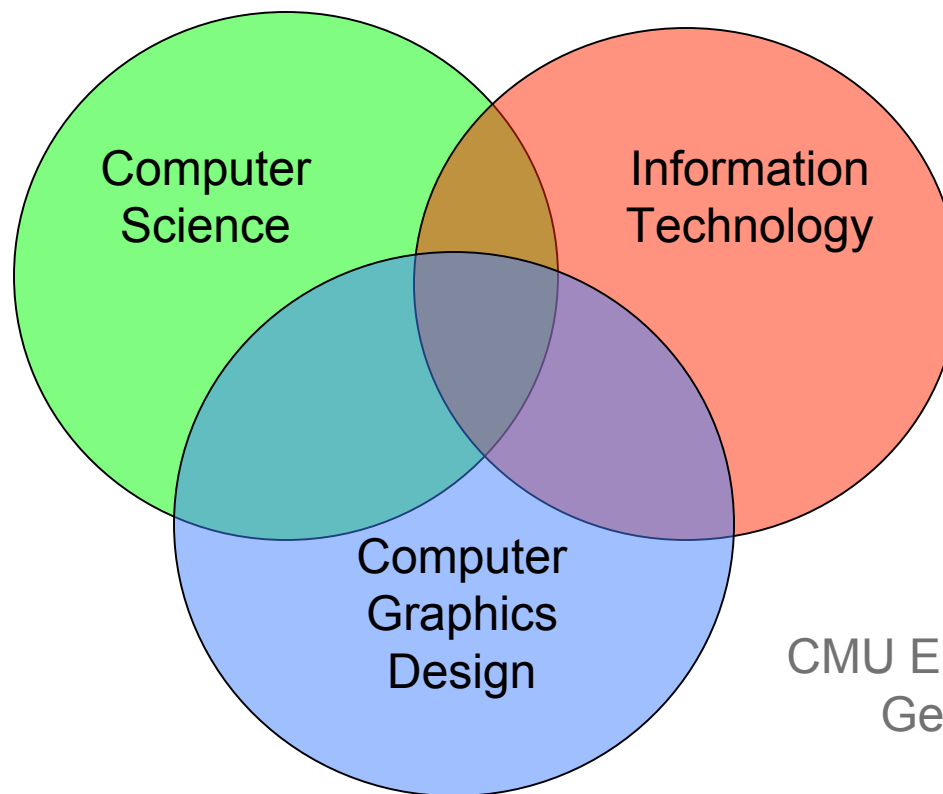
Non-Traditional Challenges

Dealing with Artists
Dealing with Writers
Dealing with Musicians
Playability
Marketing & Publishing
Player Communities
Online reputation and trust

“THE FUN FACTOR”



Multi-Disciplinary Studies



“The study of games has succeeded only in environments where they are separate from traditional computing programs and placed in multi-disciplinary environments with other members of the academic community.”

EXAMPLES:

MIT Media Lab
CMU Entertainment Technology Lab
Georgia Tech LLC+GVU Center
USC Games Program



Introduction to Curriculum

The proposed degree is a **college level** degree with courses in CS, IT, and CIAS.

Students take a “**seminar track**,” a 6 course **major**, a 3 course **minor**, and a 2-quarter **capstone experience** over the course of 2 years of full time study.

NOTE: the degree will be “housed” in Information Technology for administrative purposes until GCCIS has a structure to support “college level” degrees.



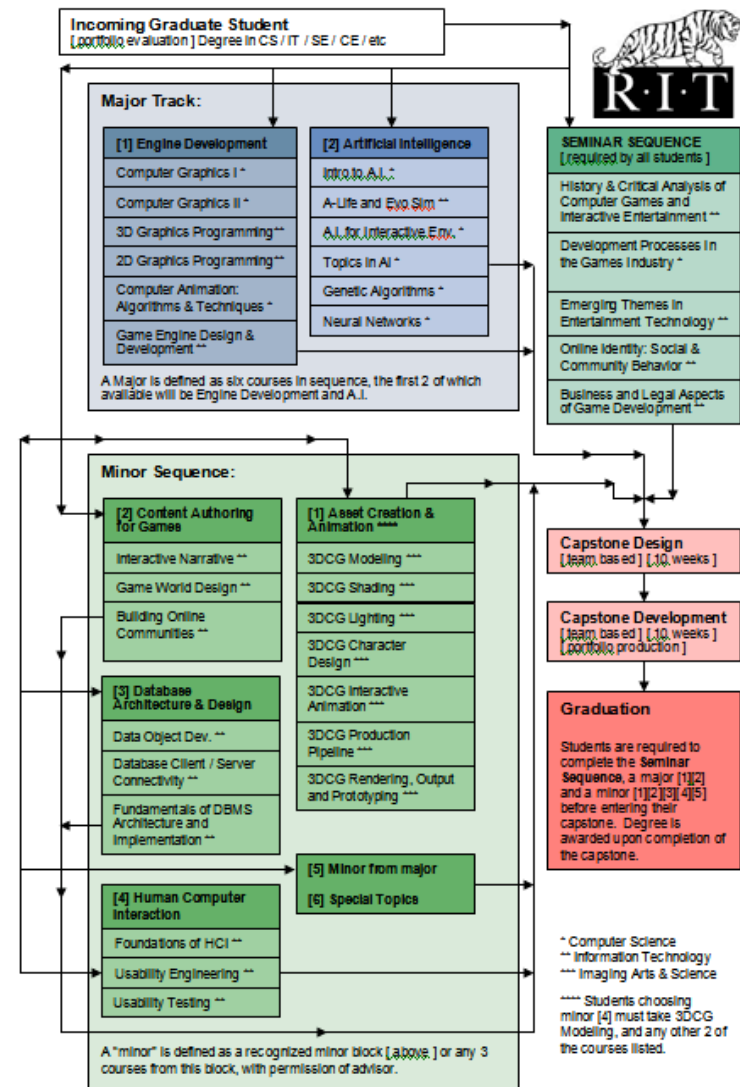
Curricular Map

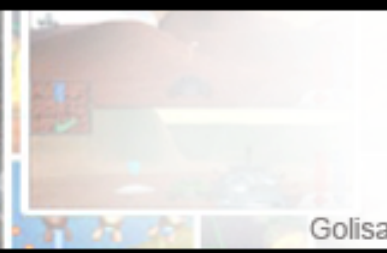
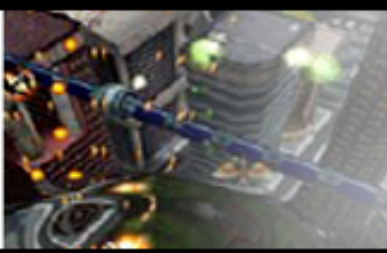
All students take the “Seminar Track”

Current majors are **Engine Development** and **Artificial Intelligence**

Current Minors are **Content Authoring, Database, HCI, Asset Creation & Management, “Minor from non-major,”** and **Special Topics**

All students complete a **Capstone Design & Capstone Development Sequence**





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Curricular Design

Students move through the program as a **cohort**, in a lock-step design. The “seminar track” and the capstone sequence are at the college level, all other courses are from CS, IT, and CIAS.

Students are admitted through a process of **portfolio review**, which is designed not only for careful admissions review, but also to balance the incoming population toward diversity of major/minor interests.

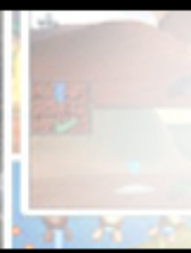


Year-by-Year Curricular Breakdown

MASTERS OF SCIENCE IN GAME DESIGN & DEVELOPMENT SEMINAR, MAJOR TRACK, AND MINOR TRACK BREAKDOWN BY YEAR		
YEAR 1 - FALL	YEAR 1 - WINTER	YEAR 1 - SPRING
SEMINAR SEQUENCE [4]	SEMINAR SEQUENCE [4]	SEMINAR SEQUENCE [4]
MAJOR TRACK [4]	MAJOR TRACK [4]	MAJOR TRACK [4]
MINOR TRACK [4]	MINOR TRACK [4]	MINOR TRACK [4]
YEAR 2 - FALL	YEAR 2 - WINTER	YEAR 2 - SPRING
SEMINAR SEQUENCE [4]	SEMINAR SEQUENCE [4]	CAPSTONE DEVELOPMENT [2]
MAJOR TRACK [4]	MAJOR TRACK [4]	
MAJOR TRACK [4]	CAPSTONE DESIGN [4]	

Table 5: Two -year progression of seminars, major track, and minor track courses to be taken by the student.





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Capstone Experience

An end-of-the-year show, similar to a gallery showing, of student games. There will be a closed faculty review, and then a second showing open to the public (and industry representatives).

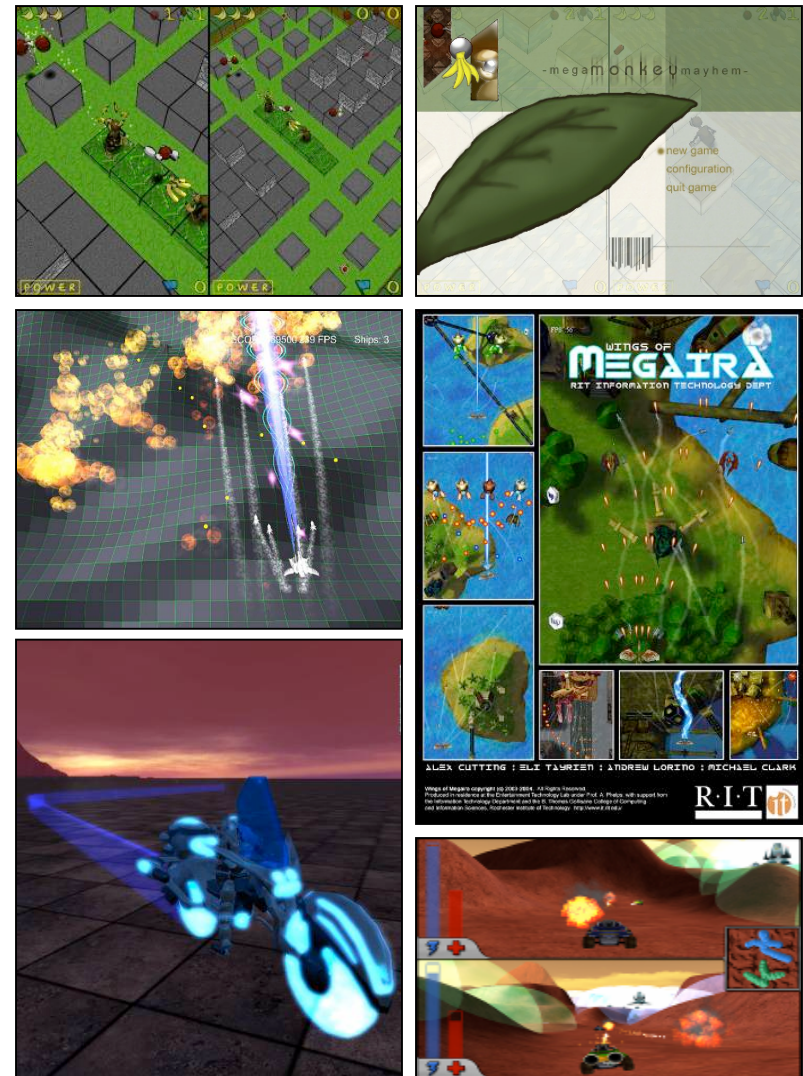
Each student is responsible for both individual and group tasks, which are identified and delineated as a part of the design process.

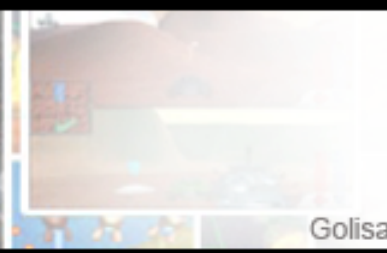
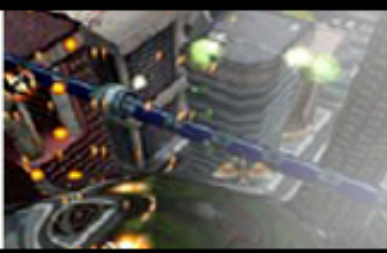


Capstone Design & Development

A 20-week experience, from design to complete execution. Students will work in industry defined roles towards a complete work of quality.

NOTE: the number of credits in the final quarter is not indicative of the rigor of the experience, but rather seeks to reduce the overall cost of the student experience.





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Student Employment

From the game programming concentration, we have seen several students employed already, and several companies are very interested in graduates from the proposed degree, including EA, Microsoft, and Sony.

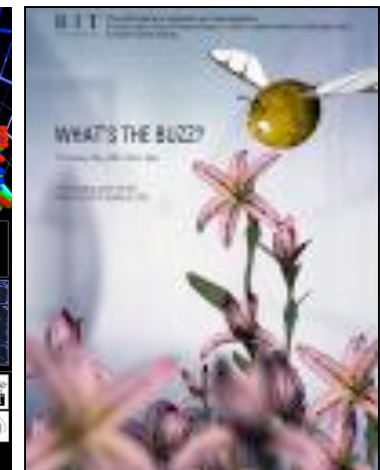
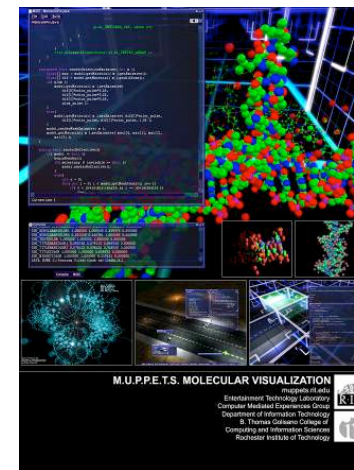
Related fields that students might enter include:

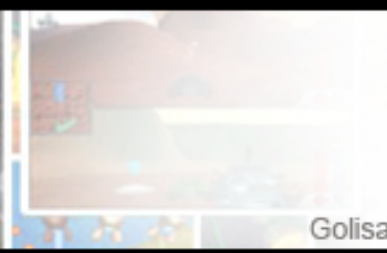
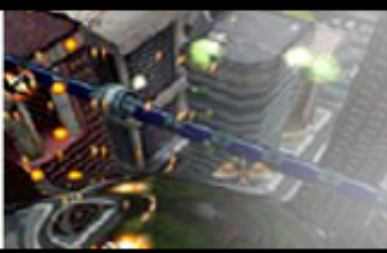
scientific visualization
military simulation/training
educational systems
augmented reality



Opportunity for Applied Research

- Projects in graphics, AI, and games education.
- Projects in social software and using games for “serious” purposes.
- Current funding of Bayliss and Phelps from Microsoft Research.
- Geigel and Schweppe work in Virtual Theatre.
- IAGER initiative from USC.
- Intersection of games technologies with other applied disciplines.
- Publications at Game Developer’s Conference, SIGCSE, SIGITE, Frontiers in Education, Serious Games Summit, ACM Queue and more!





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Conclusion

The proposed Masters of Science in Game Design & Development is academically rigorous, innovative in its design, and meets the needs of a growing industry.

We believe this degree is directly in line with RIT's tradition of excellence in graduate education for the aspiring professional, and also foresee great opportunity for focused and applied research in this area.



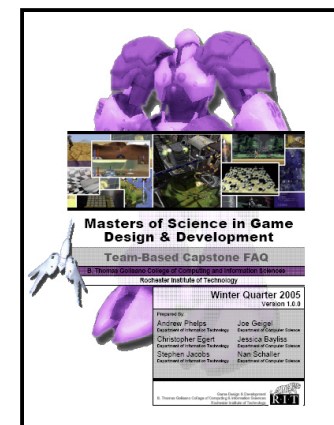
The Full Proposal

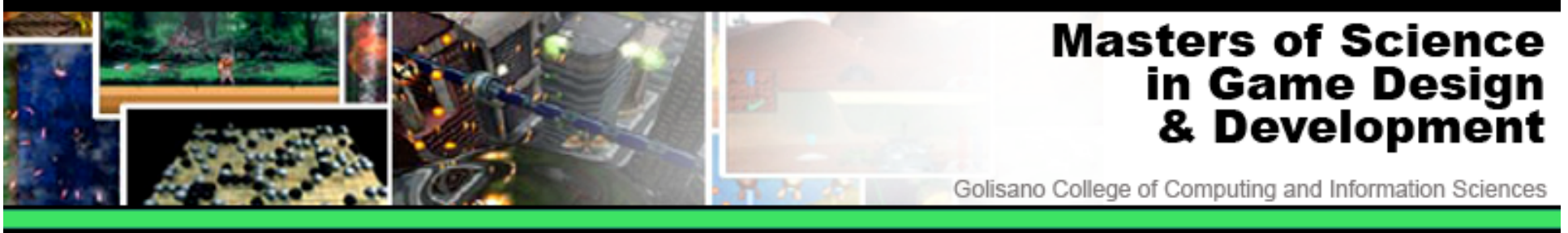
The full degree proposal is provided in the document with the blue cover. The proposal includes the full RIT enrollment projection and costing model, as well as descriptive information about the proposed degree.



For information regarding current RIT students and their ability to enroll in the proposed degree, see the Implementation Details & FAQ document with the red cover.

For a more detailed discussion of the team-based capstone, see the Team-Based Capstone FAQ with the purple cover.





Questions and Contact Information

For information regarding this proposal
please contact:

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