

Game Programming

Robin Bing-Yu Chen

Ken-Yi (Feis) Lee

Min-Hsiang Hung

National Taiwan University

Feis Studio

Introduction

- Instructors: Robin Bing-Yu Chen (陳炳宇)
Ken-Yi (Feis) Lee (李根逸)
- Producer: Min-Hsiang Hung (洪敏翔)
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feis.tw@gmail.com
tana@gamer.com.tw

About Me

- Name: **Robin** Bing-Yu Chen (陳 炳宇)
 - E-mail: robin@ntu.edu.tw
 - Web: <http://graphics.csie.ntu.edu.tw/~robin/>
- 
- Distinguished Professor, National Taiwan University, 2003-
 - Assist. & Assoc. Professor, 2003-2007-2011-2020-
 - Director, NTU D-school, 2019-
 - also, Creativity & Entrepreneurship Program, 2016-
 - Associate Director, NTU IoX Center, 2012-
 - formerly Intel-NTU CCC Center, 2012-2016
 - Associate Dean & EiMBA Director, NTU B-school, 2013-2019

 - Ph.D., IS, U-Tokyo, 2000-2003
 - M.S. & B.S., CSIE, NTU, 1991-1995-1997

 - Research Interests:
 - Computer Graphics, Human-Computer Interaction, Image Processing

About Ken-Yi (Feis) Lee

信革數位 (SIGONO) 資深工程師 (兼職) (2020 ~)

國立臺灣大學資訊系統訓練班資深講師 (2006 ~)

Feis Studio (YOUTUBE) (2014 ~)



學經歷：

雷亞遊戲 (Rayark) 技術總監 (2015 ~ 2019)

- 伊甸之魂 (Soul of Eden)

雷亞遊戲 (Rayark) 軟體工程師 (~ 2014)

- 聚爆 (Implosion)

國立臺灣大學資訊工程所博士 (~ 2014)



About Ken-Yi (Feis) Lee

研究興趣：

電腦視覺、電腦圖學、影像處理與多媒體應用
強化式機器學習

專長：

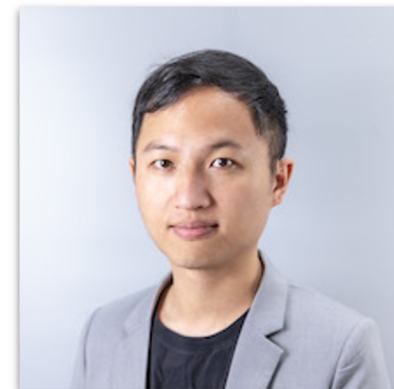
敏捷式專案管理

軟體架構設計

持續整合與發佈系統導入 (CI/CD)

程式語言 (C, C++, C#, Go, JavaScript, Java, Python, PHP, Perl, TypeScript, ...)

教育訓練



About 洪敏翔

國立台北教育大學 玩具與遊戲設計研究所 碩士

超過**19年**以上工作經驗 曾任

台大/清大 遊戲設計課程 兼任講師

有夢娛樂科技 培訓總監, 閩橡科技 總監

宇峻奧汀科技 製作人兼產品經理

iPAS 行動遊戲程式設計能力鑑定證照評鑑委員

iPAS App企劃師能力鑑定證照評鑑, 命題委員

TAVAR / TGDCA 協會共同發起人



知名參與作品：

新仙劍奇俠傳, 王國騎士團, Confrontation
獸魂站起來, 強襲裝甲VR, Surreal Edu.



Introduction

□ Homepage:

- <http://graphics.csie.ntu.edu.tw/~robin/courses/game20/>
- all materials / info. will be announced ASAP

□ Facebook:

- NTU Game Programming 2020
via <https://www.facebook.com/groups/323939165605904>

□ TA:

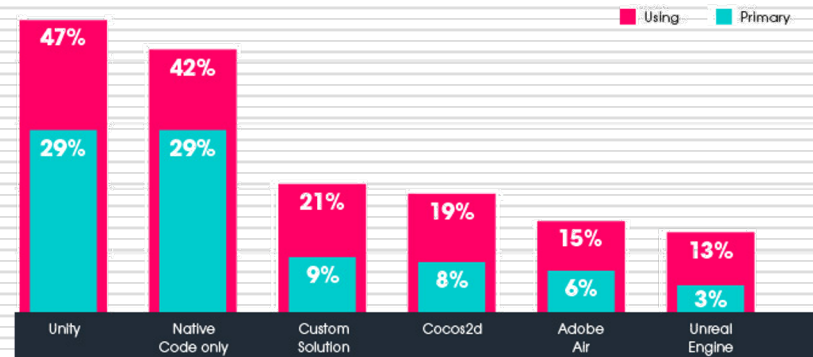
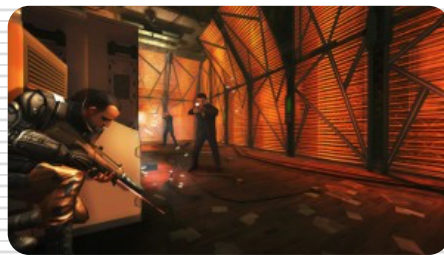
- 孫振國: leosun@cmlab.csie.ntu.edu.tw
- 陳亦珊: r08725010@cmlab.csie.ntu.edu.tw



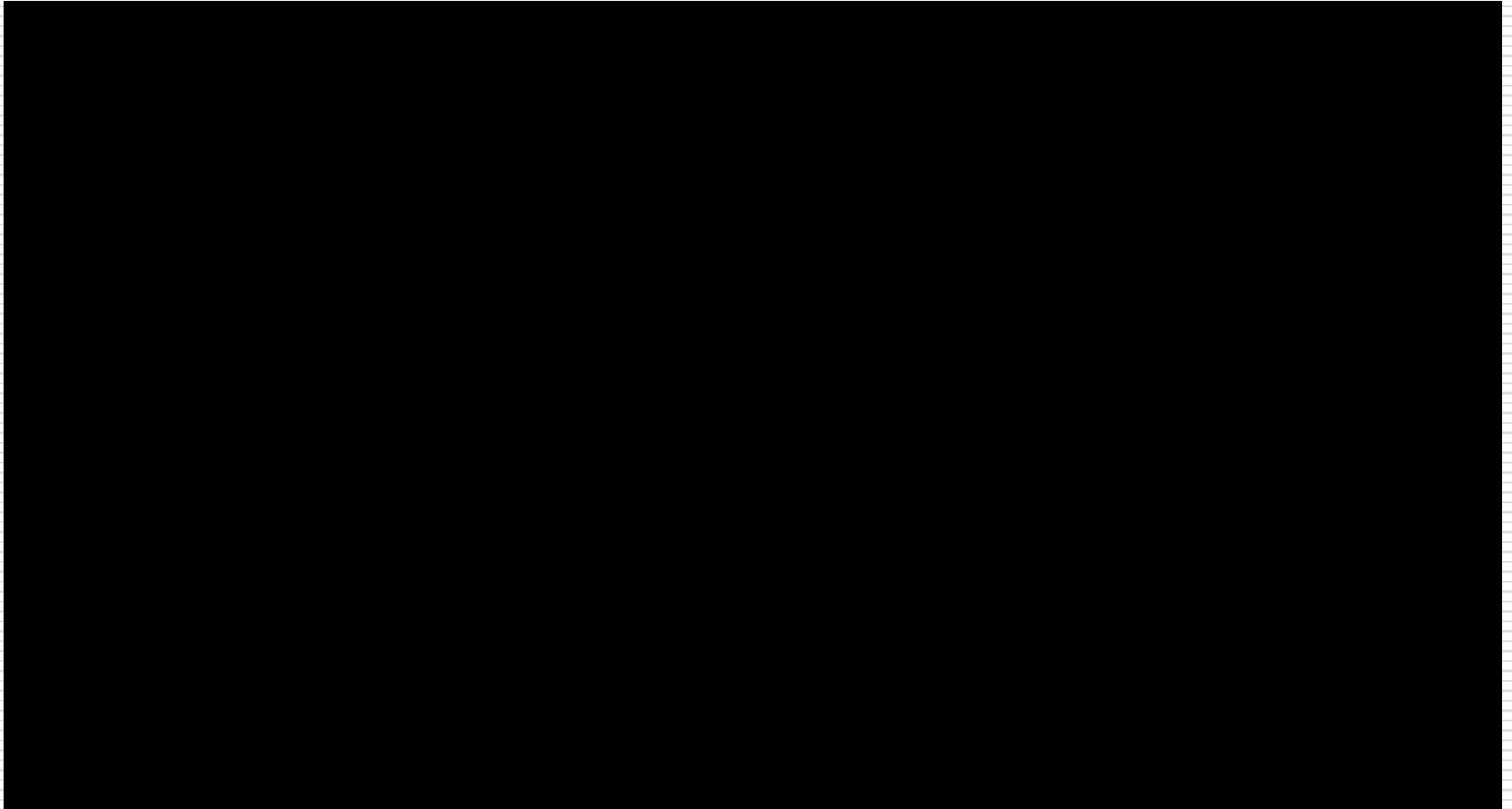
WHAT YOU WILL **LEARN**

50% Programming + 50% Fun

- ❑ Horsing the power of Unity engine.
- ❑ Over 45% Market share over world
- ❑ Cross-platform development (PC,IOS,OSX,Android,Linux,WebGL,P S3,Wii,XBOX...etc...)



GDC 2019 Unity Showcase



Syllabus (tentative)

- 9/16 Introduction / Pipeline
- 9/23 *Grouping / Unity*
- 9/30 Game Analysis
- 10/7 *Brainstorming (proposal)*
- 10/14 Pipeline / Unity
- 10/21 Game Control
- 10/28 Game Math
- 11/4 *Brainstorming (prototype w/o art)*

Syllabus (tentative)

- 11/11 Game Animation / Looping
- 11/18 skip
- 11/25 Game Geometry
- 12/2 *Brainstorming (testing w/ art)*
- 12/9 Game AI / Physics
- 12/16 skip
- 12/23 Game FX / Net
- 12/30 *Final Demo*

Syllabus (tentative)

- Time for
 - all lectures: 14:20-17:20
 - all brainstorming: 13:20-17:20 w/o break
 - You can only come for your presentation/discussion, but it is strongly recommended to stay and learn from other groups.
 - final demo: 12:00-17:30

- 1/9 D-Day (showcase)

- 1/19 Game Competition!
 - 12/31 18:00 submission deadline
 - 1/7 18:00 announcement for final competition

About Game Competition

- 本課程於期末將與其他各校聯合舉辦一個遊戲設計競賽，主要強調於遊戲開發的整體運作，而不僅僅是程式設計部分。參賽隊伍需要繳交完整的軟體成果。

- 贊助廠商：鈔象電子(IGS)等

競爭對手



清華大學



台灣大學



台灣科技大學



台北藝術大學



台北科技大學



政治大學

重要時程 (暫定)

- 初賽：12月31日，將遊戲影片及書面資料上傳至FTP，會由評審們從各校全部參賽組別中選出20組隊伍進入決賽。
 - 決賽：1月19日，各隊伍在比賽會場成果DEMO，當天宣布結果並頒獎。
-

比賽獎金 (2017)

名次	獎學金
首獎(1組)	50,000+獎盃+獎狀
優等(7組)	獎狀+3,000
佳作(7組)	獎狀+1,000
入選(20組)	1,000

詳細比賽獎項(2017)

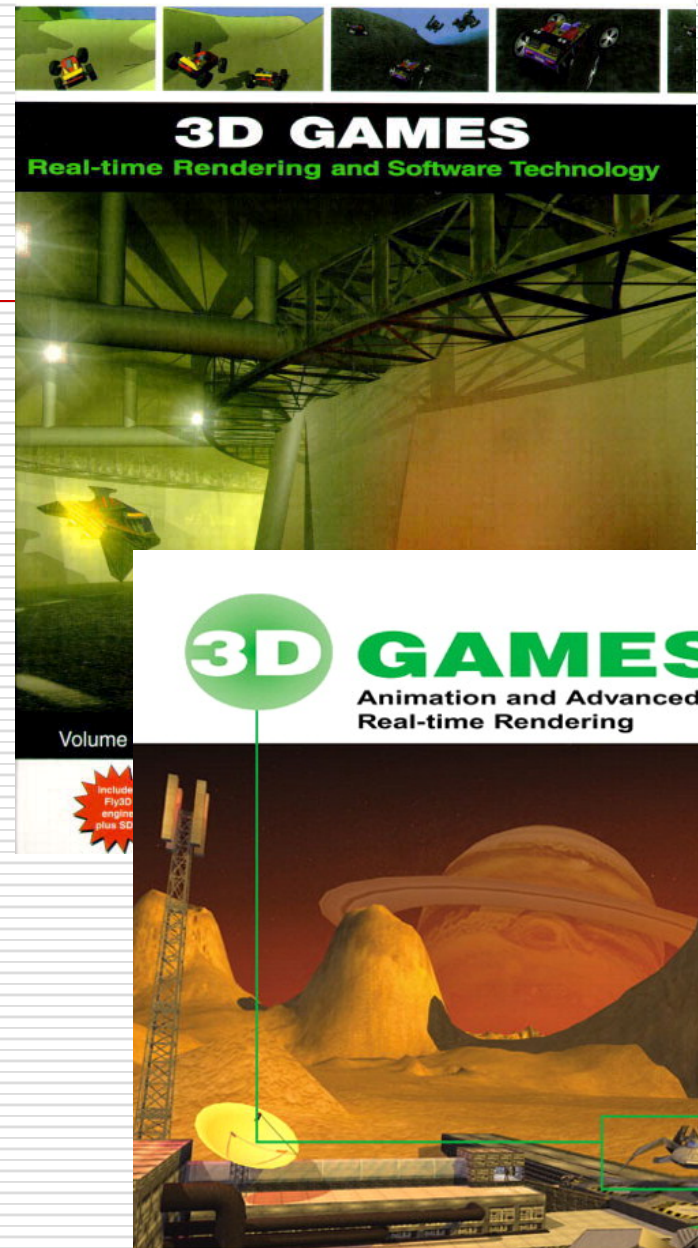
- 最佳創新獎
 - 優等2組、佳作1組
- 最佳人氣獎
 - 優等1組
- 最佳台風獎
 - 佳作1組
- 最佳遊戲劇本獎
 - 佳作1組
- 最佳技術獎(網路技術、視覺特效、互動設計、遊戲效能)
 - 優等2組、佳作2組
- 最佳音效獎
 - 優等1組
- 最佳視覺設計獎
 - 優等1組、佳作1組



年度風雲遊戲獎

Reference

- A. Watt and F. Policarpo. *3D Games: Volume 1&2: Real-time Rendering and Software Technology & Animation and Advanced Real-time Rendering*, Addison-Wesley, 2000&2003.



Alan Watt | Fabio Policarpo

ADDISON-WESLEY

volume
two

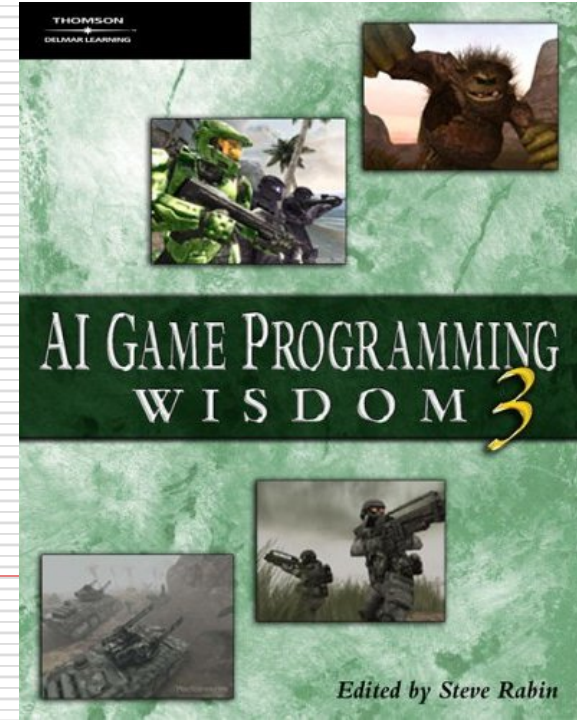
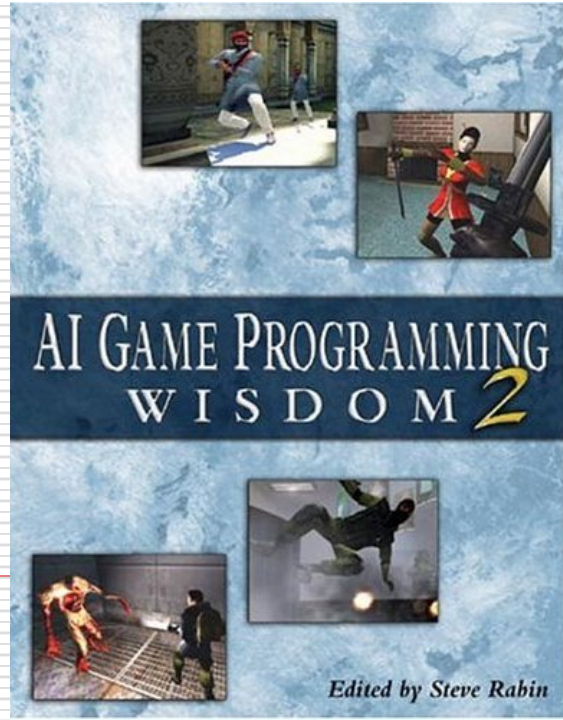
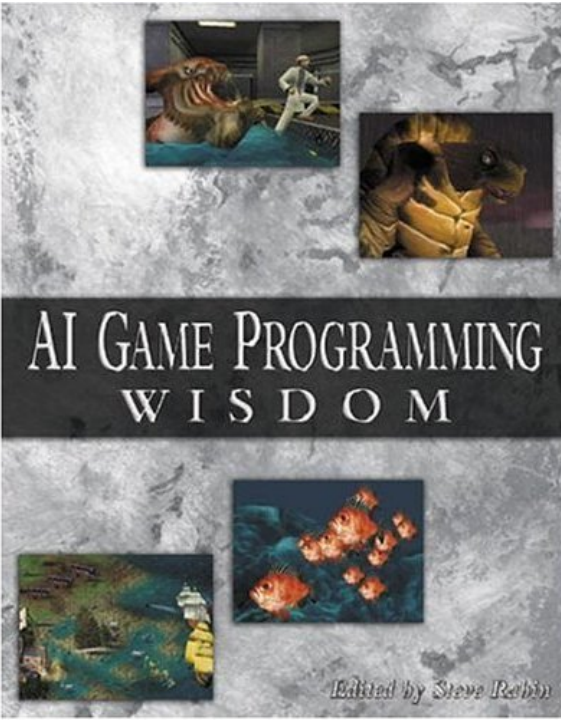
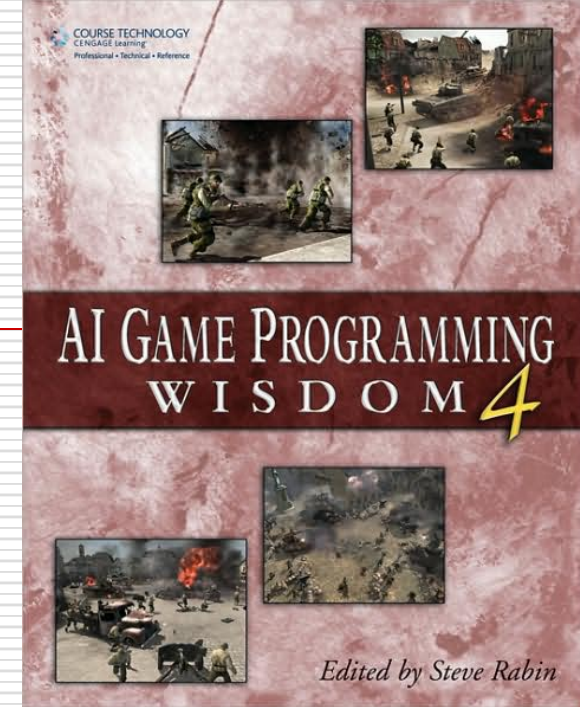
Reference

- M. DeLoura & D. Treglia & A. Kirmse & K. Pallister & M. Dickheiser & S. Jacobs. *(Best of) Game Programming Gems 1~8*, Charles River Media / Course Technology PTR, 2000~2010.



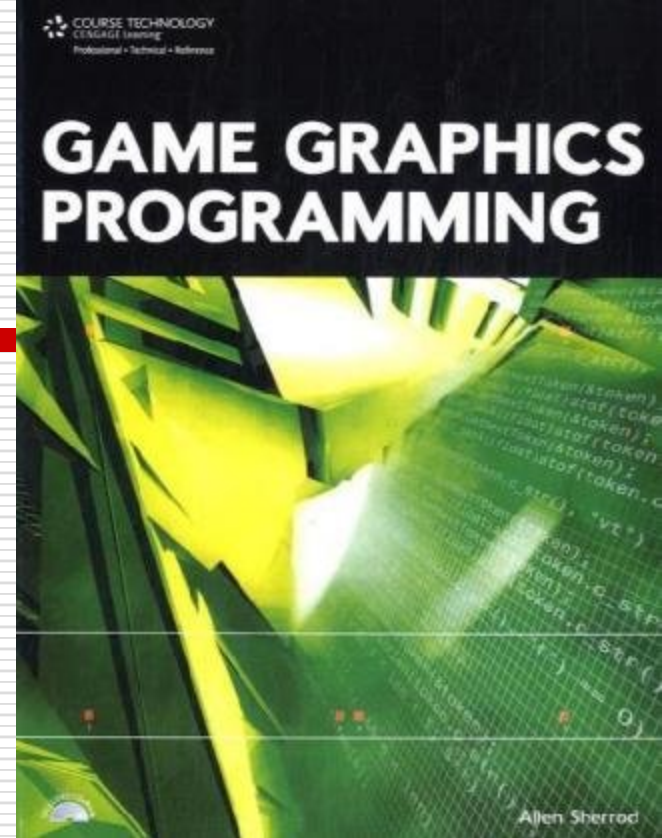
Reference

- S. Rabin.
AI Game Programming Wisdom 1~4, Charles River Media, 2002~2008.



Reference

- A. Sherrod.
Game Graphics Programming, Charles River Media, 2008.
- A. Watt and F. Policarpo.
Advanced Game Development with Programmable Graphics Hardware, A K Peters, 2005.



**Advanced Game Development
with Programmable Graphics Hardware**

Alan Watt
Fabio Policarpo

WHAT YOU WILL NOT LEARN

Programming V.S. Design

- Our focus is on “Programming” rather than “Design”, though will touch a little bit.
- We will not tell you how to design a game to
 - make everyone crazy about your game.
 - make you a billionaire.
- You need a good team to accomplish every necessary component of design an immortal game.
 - Actually, no game is immortal...

PS. You may also think about to take Game for Life.

IS THIS COURSE HEAVY ?

Pre-requirements

- Programing
- Data Structure
- Algorithm
- Computer Graphics
 - better to have

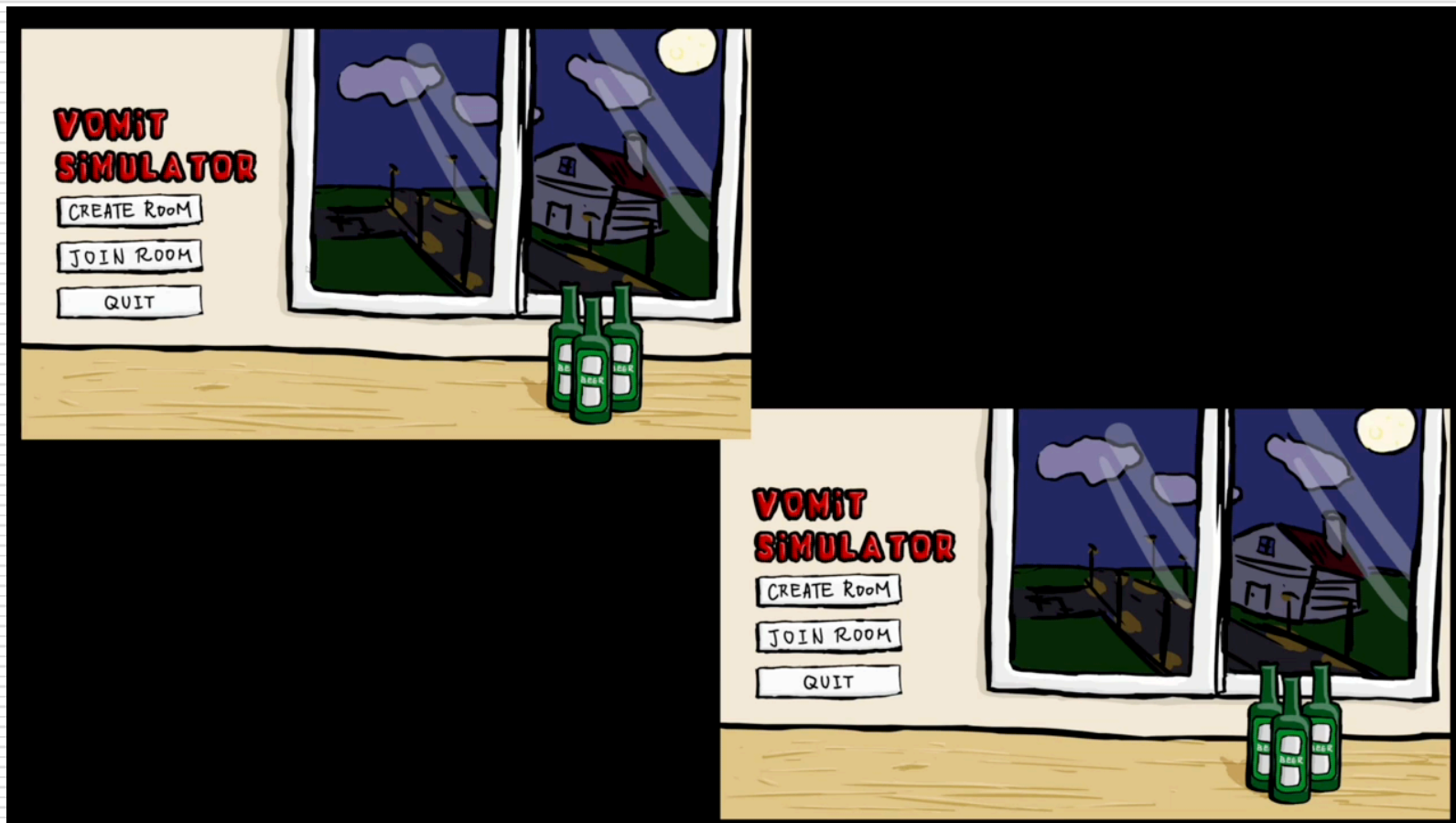
Requirements

- Participants
- Final Game Project!
 - (w/ some presentations)

DEMO OR DIE!

Final Game Project 2017

Vomit Simulator (最佳創意獎)



Final Game Project 2017

四象之間 (最佳技術獎)



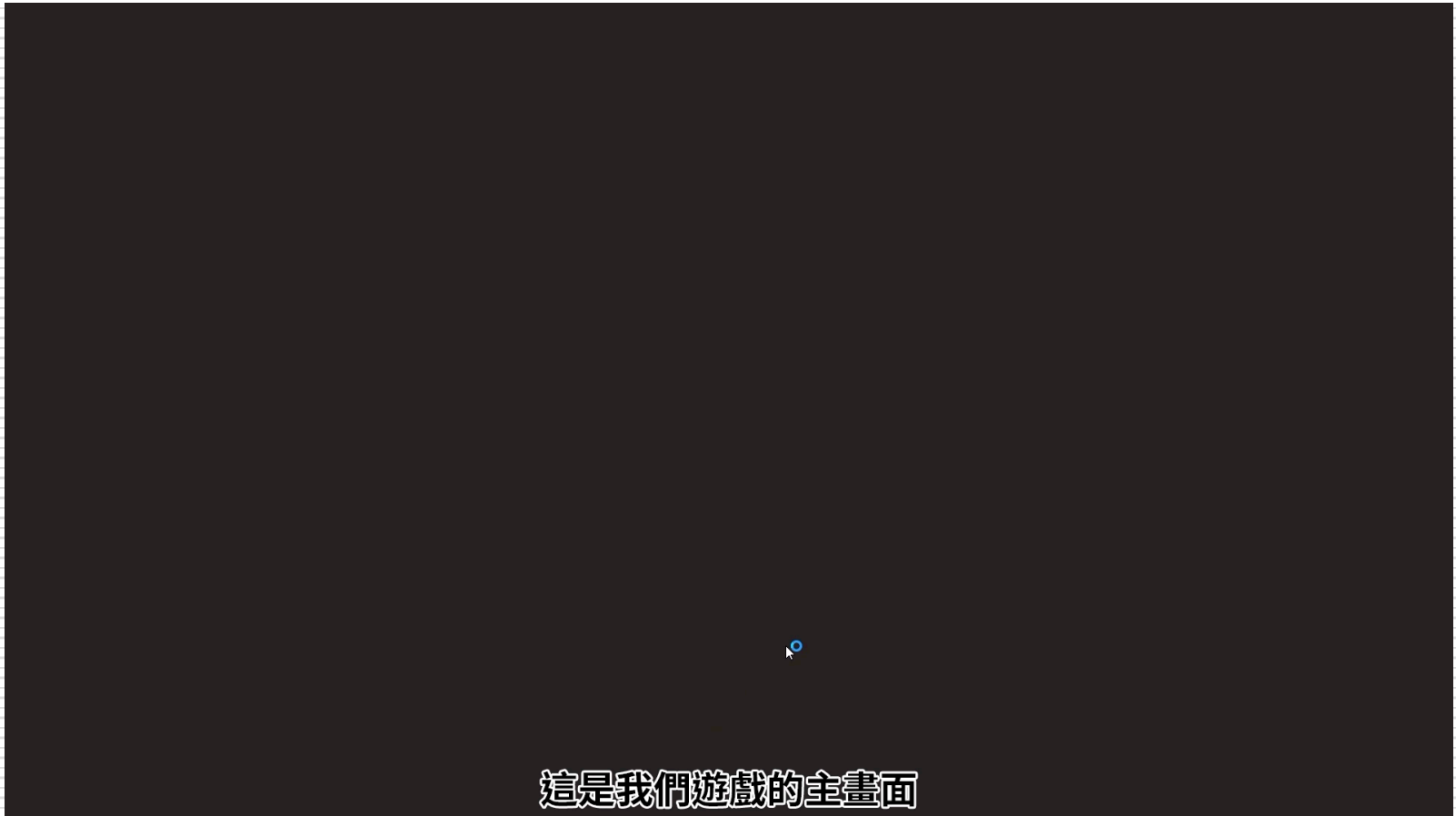
Final Game Project 2017

Gerritory (年度風雲獎)



Final Game Project 2018

辦公室偷情



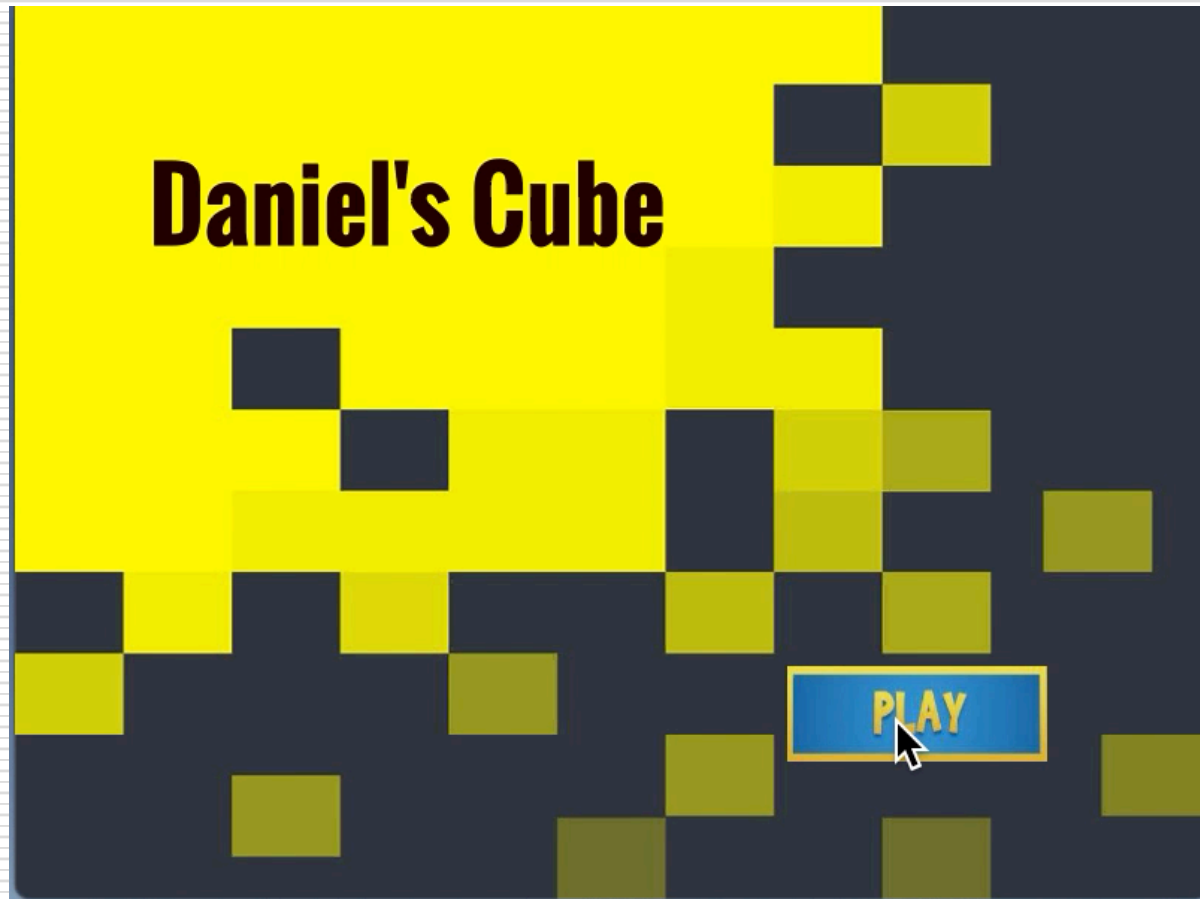
Final Game Project 2018

NB4U (特別獎)



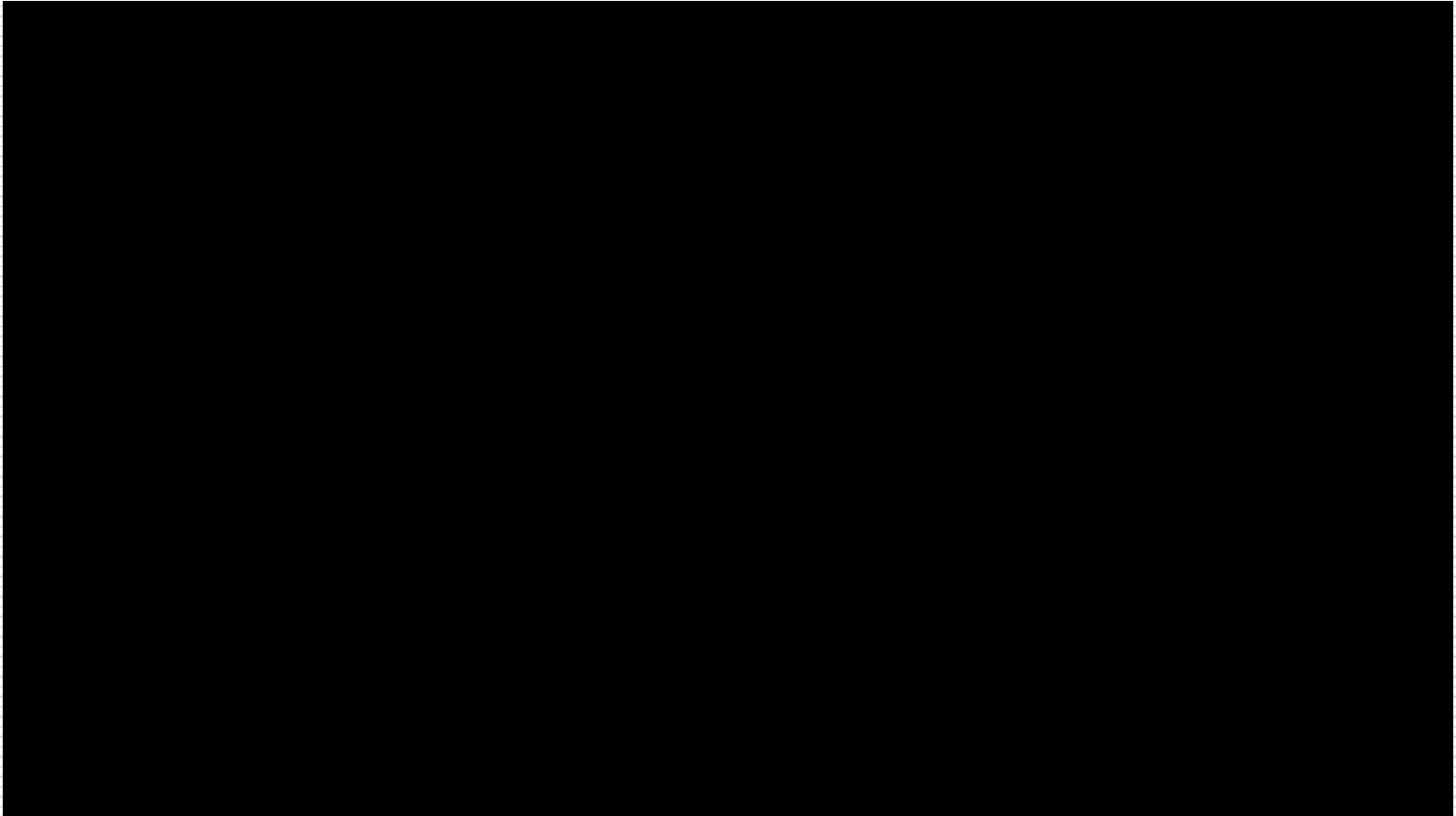
Final Game Project 2018

Daniel's Cube (最佳創新獎)



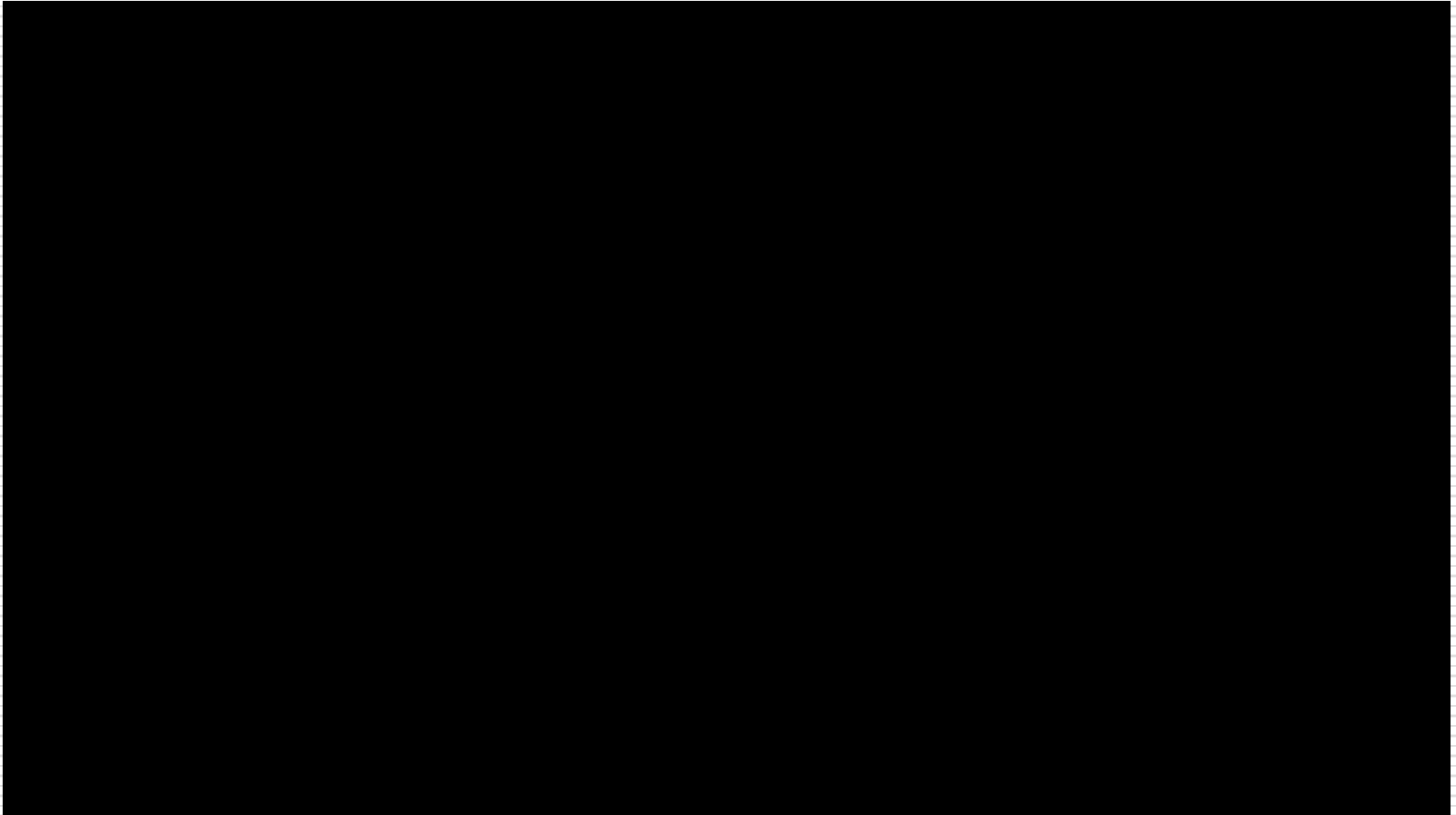
Final Game Project 2019

Block++



Final Game Project 2019

讓我玩遊戲



Final Game Project 2019

CyberCore (最佳人氣獎)

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National Taiwan University
Game Programming Design
2019

Final Game Project

- ❑ **2 ~ 4 students** are in a team.
- ❑ Use Unity engine (or others) to code a real-time 2D/3D game.
- ❑ *If you want to do this alone, please come to discuss with us.*

Due Dates

- 9/30 Team Member List
- 10/7 Proposal ver.0
 - before *Brainstorming*
- 11/4 Proposal ver.1
 - before *Brainstorming*
- 11/11 Execution file ver.1
- 12/2 Proposal ver.2
 - before *Brainstorming*
- 12/9 Execution file ver.2
- 12/30 Final proposal
 - before *Final Demo*
- 1/6 Final Execution file
 - including a demo or introduction video

About Next Week

- ❑ Please find your team members before next week if possible.
- ❑ If your team is ready, please start to think about what kind of game do you want to do.
- ❑ If you have no friend here, please think about three kinds of games you want to do, we will help you to find team members next week.
- ❑ Whatever you have a team or not, you should do the first presentation for your game after three weeks.