

welcome to
DIGITAL MEDIA &
Games



Contents today

- About me & the other staff.
- A bit about you. (pollev.com/derekgroen435).
- Game study.
- History of Video Games.
- Your ideas on the module.
- Introduction to the module + Q&A.



Who teaches this module?

- Dr. George Ghinea.
- Dr. Alireza Jahani.
- Dr. Diana Suleimenova.
- Myself.

Lab support

- Dr. Hamid Arabnejad, Maziar Ghorbani, Dr. Estavao Saleme (remotely from Brasil).

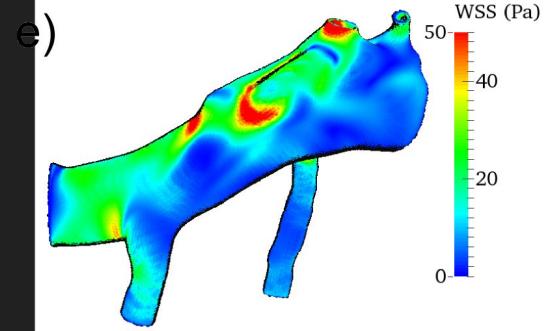
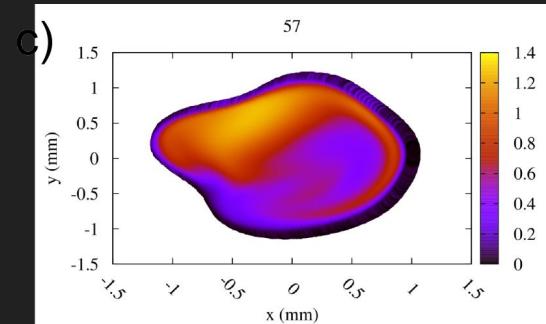
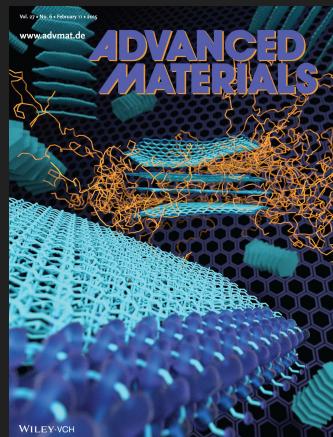
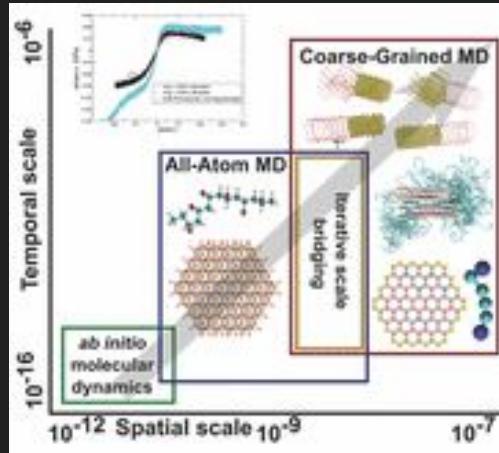
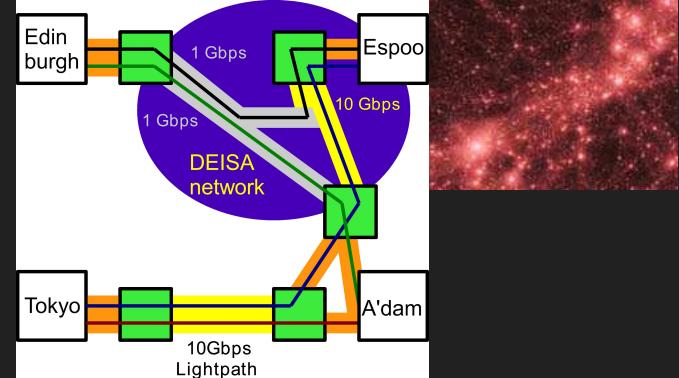
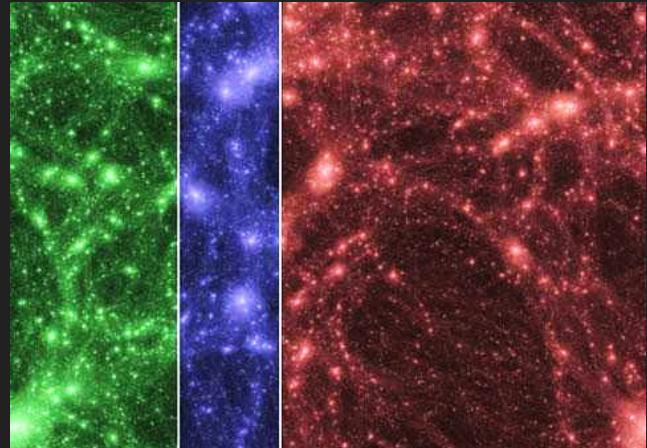


About me

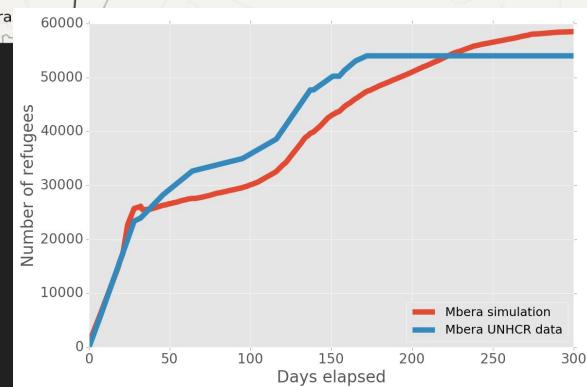
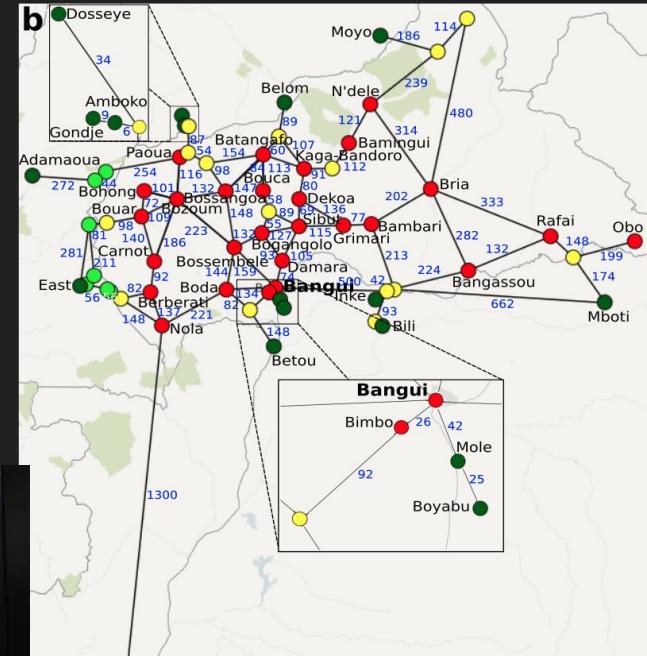
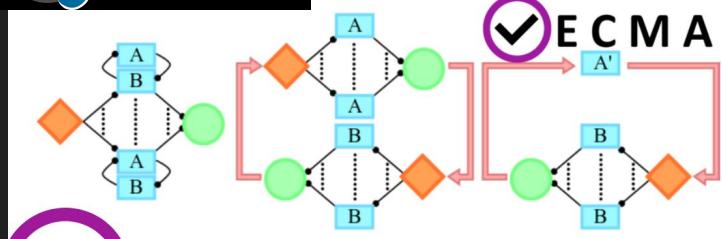
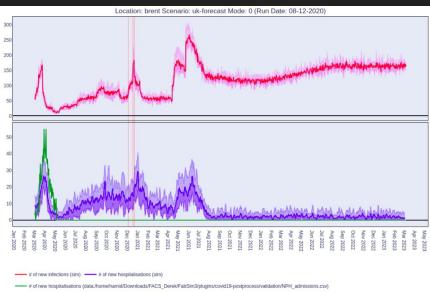
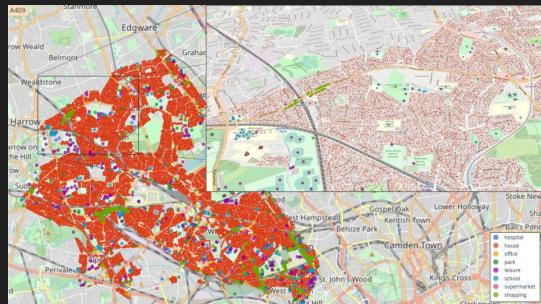
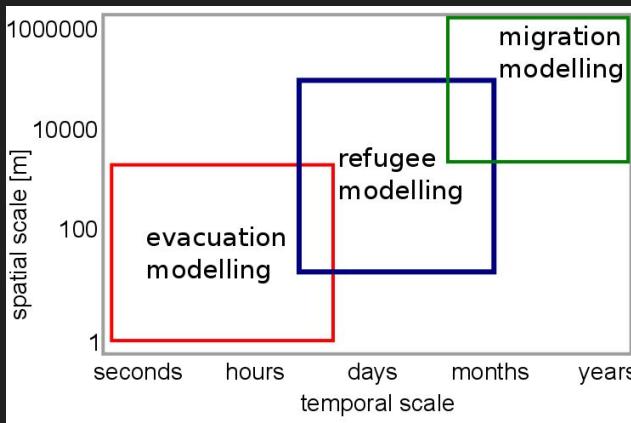
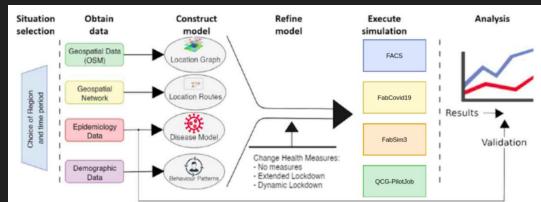
- 2010: received PhD in Computational Astrophysics at the University of Amsterdam.
- 2010-2015: Post-doctoral researcher at University College London.
- 2015-now: (Senior) Lecturer in Simulation & Modelling at Brunel.



My research (past)

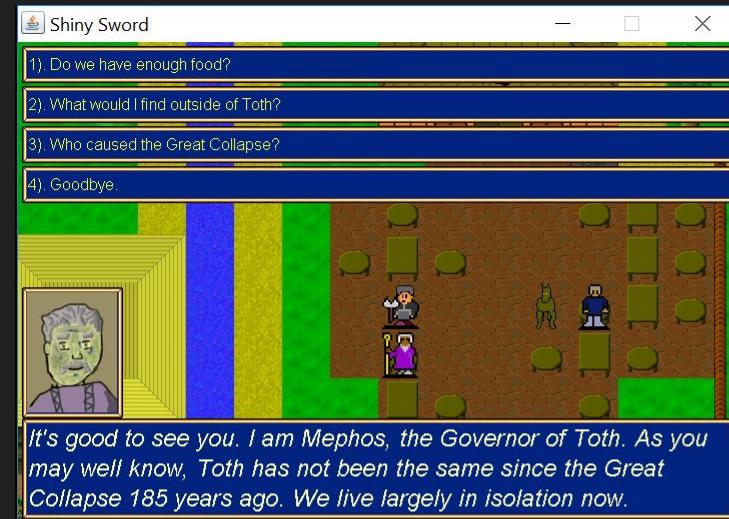


Present



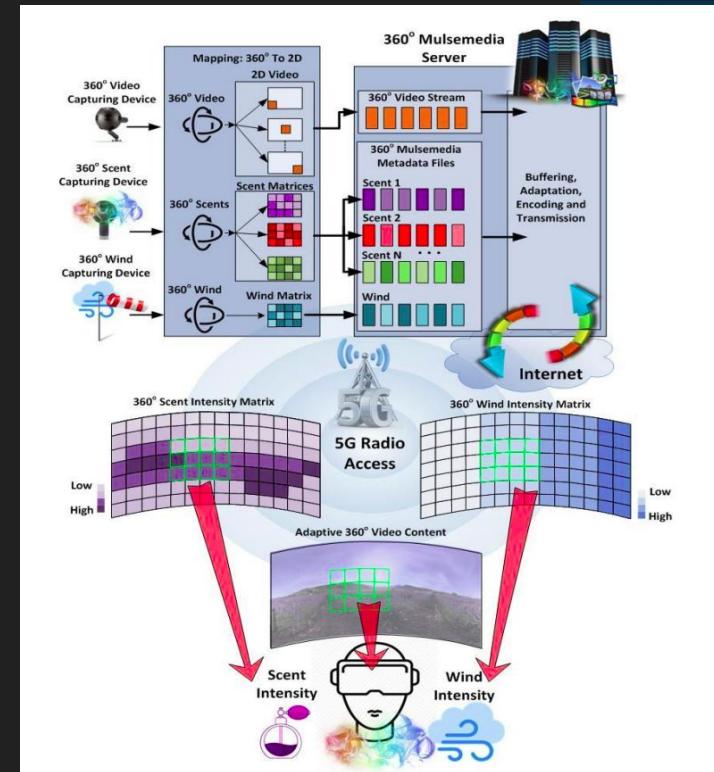
Me & Games

- Leading CS3005 since 2017.
- Avid RPG gamer & developed a few (ugly) RPGs myself for fun:



Prof. George Ghinea

- Professor in Mulsemedia Computing
- Head of Research
- Focus: intersection of CS, media and psychology.
- Mulsemedia = multi-sensoral media.



Comşa, I., Saleme, E.B., Covaci, A., Assres, G.M., Trestian, R., Saibel Santos, C.A. and Ghinea, G. (2020) 'Do I Smell Coffee? The Tale of a 360° Mulsemedia Experience,' IEEE MultiMedia, 27(1), pp. 27-36. doi: 10.1109/MMUL.2019.2954405.

Diana Suleimenova & Dr. Alireza Jahani

- Post-doctoral Research Fellow on HiDALGO.
- PhD in Computer Science from Brunel (2019).
- Research focus: quantitative data analysis of forced migration & VVUQ.
- Programming skills: Python and C#
- e-mail: diana.suleimenova@brunel.ac.uk

- Post-doctoral Research Fellow on ITFLOWS.
- PhD in Computer Science from Univ. Putra Malaysia (2014).
- Research focus: multi-agent systems, code coupling, machine learning.
- E-mail: alireza.jahani@brunel.ac.uk



About you

<http://pollev.com/derekgroen435>



The beginning: Spacewar

- First to gain recognition.
 - Conceived in 1961 by Martin Graetz, Stephen Russell and Warne Wiitanen at MIT.
 - Written for the PDP-1 minicomputer.
 - Shoot 'em up with gravity.
- Still playable:

<https://www.masswerk.at/spacewar/>



History of Video Games

<https://www.youtube.com/watch?v=empni1yCPqw&feature=youtu.be>

History of Video Games: 1970s

- Golden age of video arcades
 - Pong, Asteroids, Space Invaders, Pac Man
- 1st generation consoles (1972-1976)
 - Magnavox Odyssey
- 2nd generation consoles (1977-1984)
 - Atari 2600, Intellivision, Colecovision, Activision
- Mainframe computers
 - Hunt the Wumpus, Colossal Cave Adventure
- Home computers
 - Floppy, tape, Zork, Donkey Kong or type the program in.



Sources: Thegameconsole.com, wikipedia.org

History of Video Games: 1980s

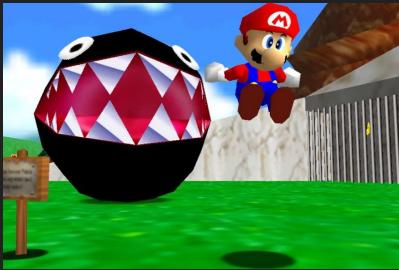
- Gaming computers
 - Apple II, Commodore 64, Atari 800.
- Early online gaming
 - Mostly text-only, MUDs (multi-user dungeons)
- LCD Games (Game & Watch)
- Video game crash of 1983
 - Caused by flood of poor-quality games.
- 3rd generation consoles
 - Nintendo Entertainment System
 - Super Mario, Zelda.



Sources: Thegameconsole.com, wikipedia.org

History of Video Games: 1990s

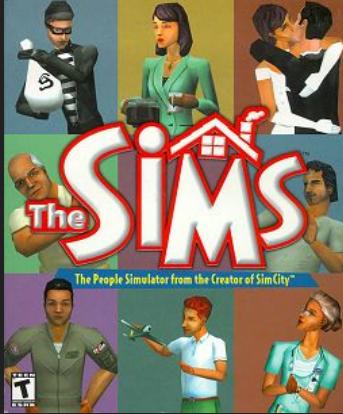
- Decline of arcades
- Handhelds come of age.
 - Game Boy, Game Gear
- 4th generation consoles (1990-1994)
 - Super Nintendo, Sega Megadrive
- 5th generation consoles (1995-2000)
 - Playstation, Nintendo 64
- Transition to 3D, CDs (e.g. CD-ROM)



Sources: Thegameconsole.com, wikipedia.org

History of Video Games: 2000-2005

- Rise of mobile games
- 6th generation consoles
 - PS2, XBOX, GameCube
 - Return of alternative controllers
- Rise of online gaming
 - World of Warcraft
- Rise of casual gaming
 - The Sims, Bejeweled



Sources: Thegameconsole.com, wikipedia.org

History of Video Games: 2005-2010

- 7th generation consoles.
 - PS3, XBox 360, Wii.
- Motion controller go mainstream.
- Touchscreen-based mobile gaming
 - Nintendo DS, smartphones.
- Increase in development budgets.



Sources: Thegameconsole.com, wikipedia.org



History of Video Games: 2010s

- Consoles: Playstation 4, XBox One, Nintendo Switch & 3DS.
 - Playstation Vita & Nintendo Wii U flopped.
- Increasing role for augmented / virtual reality games.
 - HTC Vive, Oculus Rift, but also Pokemon Go etc.
- Advent of Cloud Gaming:
 - E.g. Google Stadia
- Rise of microtransactions and loot boxes:
 - Purchase in-game items using real money.





Now & soon

- Better graphics, more immersion (as always).
- Better controllers
 - E.g. adaptive feedback from the PS5.
- Transferable game assets.
 - NFT games.



About the module

<http://pollev.com/derekgroen435>

Introducing the module

How to Contact us

- Use Microsoft Teams!
- Or if you cannot access Teams, please e-mail:

Derek.Groen@brunel.ac.uk,





Module goals

1. Identify and explain the key concepts in digital media and game development (including architectural and design methodology, patterns and notations).
2. Design and critically evaluate console, mobile and web based entertainment and gaming systems (assessing and utilising a range of digital media).
3. Implement and critically evaluate a game using a recognised game development environment.



Lecture layout

- Monday 3-5 PM, LECT A + Online (Teams)
 - Live lectures, online interactivity may be limited.
- Streaming format: 2 x 45 minutes
- Questions / comments welcome at any time.

Term 1



Week	Lecture Topic	Lecturer
1	Introduction	Dr. Derek Groen
2	Design Patterns for Games	Dr. Derek Groen
3	Designing Interactions for Games	Prof. George Ghinea
4	Game Prototyping and Testing	Dr. Derek Groen
5	Artificial Intelligence in Games	Dr. Alireza Jahani
6	Simulation in Games	Dr. Derek Groen
7	Reading week (no lecture)	
8	Player Engagement and Gamification	Dr. Derek Groen
9	3D Graphics and Video	Prof. George Ghinea
10	2D graphics, images and audio	Dr. Diana Suleimenova
11	Industry Lecture on Games	Jonathan Amor (Supermassive Games)
12	Immersion for Games	Prof. George Ghinea

Labs



<https://www.youtube.com/watch?v=1L6rig10wiQ>



Lectures, labs & Covid-19

- Covid-19 is still with us, so attending in person or online is your free choice.
- Infections are worse indoors, with close conversations and in crowded places. So please wear a mask if possible when attending in person.
- We have increased support staffing online and offline to better help you during labs.



Online content

- Aim to have lecture slides available at the start of every lecture.
- Aim to have lab materials will be available at least 5 days before the relevant lab week.
- I will add additional support resources online, such as a FAQ and other guiding materials.



Online support

- MS Teams is for lectures and labs:
 - Please use the lab sessions for support, our availability during the rest of the week may be limited.
 - If you have an issue, please use MS-Teams to communicate it.
 - Incoming e-mails will get a kind redirect response from me (if I'm not busy), or simply get buried under e-mails from my 5 ongoing research projects (if I am busy).
- Blackboard is for storing all static course materials, signposting information and FAQs.



Lab setup

- Labs take place in TOWA 407 as well as online:
 - We recommend in person attendance when you have a complicated bug that needs collaborative debugging.
 - We recommend in person attendance if you are not able to do CS3005 lab work well in your home setting.
 - We recommend online attendance if the current work seems very easy to you (as seating capacity is limited).
 - We recommend online attendance if you are not feeling well.
- Please set up Unity on your local machine:
<https://docs.unity3d.com/560/Documentation/Manual/InstallingUnity.html>
 - ...and let us know if you cannot get Unity to work in your local machine.



Summary of the lab format

- All material is available online
 - Physical attendance is neither required nor expected.
- Labs on Monday 5-7 PM, start in Week 1
- Limited support on other days.
- Required: Microsoft Visual Studio + Unity 2019.
- Coding in C#.
- Windows only, Unity is installed on the lab machines but I would recommend a local setup.



Term 1

Week	Date	Activity	Labs
1	20/9	Introduction to C#	Dr. Derek Groen
2	27/9	Introduction to Unity (basic game tutorial part 1)	Dr. Derek Groen, Dr. Alireza Jahani
3	4/10	Introduction to Unity (basic game tutorial part 2)	Prof. George Ghinea, Dr. Hamid Arabnejad, Dr. Alireza Jahani
4	11/10	Introduction to Unity (advanced game tutorial part 1)	Dr. Derek Groen, Dr. Alireza Jahani
5	18/10	Introduction to Unity (advanced game tutorial part 2)	Dr. Derek Groen, Dr. Alireza Jahani, Dr. Diana Suleimenova
6	25/10	Introduction to Unity (advanced game tutorial part 3)	Dr. Derek Groen, Dr. Alireza Jahani, Dr. Diana Suleimenova
7	1/11	Reading week (no lab)	
8	8/11	Coursework Lab – coding	Dr. Derek Groen, Dr. Diana Suleimenova
9	15/11	Coursework Lab – coding	Prof. George Ghinea, Dr. Hamid Arabnejad, Dr. Diana Suleimenova
10	22/11	Coursework Lab – debugging	Dr. Derek Groen, Dr. Diana Suleimenova
11	29/11	No lab	
12	6/12	No lab	



Assessment: Threshold Coursework

Build your own three-level game in Unity (either pong-based or a platformer).

Distributed in the week of 11th October 2021.

Deadline 24th November 2021 at 11 AM.

Submissions via WISEflow (see study guide for details).

PASS required to do the Exam.



Reading list

1. Li, Z.N., Drew, M.S. and Liu, J., 2014. Fundamentals of multimedia. Upper Saddle River (NJ):: Pearson Prentice Hall.
2. McShaffry, M., 2014. Game coding complete. Nelson Education.
3. Fullerton, T., 2008. Game design workshop: a playcentric approach to creating innovative games. CRC press. (free online)

Supplementary Reading

1. Thompson, J., Berbank-Green, B. and Cusworth, N., 2007. Game design: Principles, practice, and techniques-the ultimate guide for the aspiring game designer. John Wiley & Sons.



Exam

- 3 hours time slot
- At least D- if labs are completed, invalid otherwise.
- Consists of four levels:
 - Level 1-3: multiple choice questions.
 - If >75% correct, then unlocks:
 - Level 4: a larger game design exercise to determine top grades.
- We will provide example exams towards the end of the term.



Any other questions



Next week: design patterns for games

- Learn how to properly identify the formal elements in a game.