serious games in a social context

www.cs.vu.nl/∼eliens/serious/proposal.html

status: 5/5/11 – first proposal

contents: This document contains an outline description for a course *serious games in a social context*, that is to replace two of the current master courses for students mCS/MM. With this course students interested in multimedia and game development will have better options to integrate these topics within their curriculum. As a consequence, an independent specialization mCS/MM might have to disappear, which seems to be in line with the general (intended) direction of the CS curriculum.

general description of the course It will be a course for 6 ects, preferably in period 2 or 5. The lecturer will be prof. dr. A. Eliëns, possibly in combinations with others. The course is targeted as a choice for master students CS, IS, and others, with an interest in multimedia and game development, and will use english, for teaching and student reports. For the (preliminary) studyguide information and the (preliminary) website for the course, see

- studyguide – www.cs.vu.nl/∼eliens/serious/studiegids.html
- website – www.cs.vu.nl/∼eliens/serious

course aim(s) Serious games are more and more considered to be an effective means to bring about awareness, acquire skills, change behavior, and influence social patterns. With elementary game development technology, the students will explore the potential of serious games in a social context, using casual game mechanics, and what recently has been identified as the dynamics of gamification. More specifically, the course aims to teach:

- an introduction to game design
- practical skills in game development
- game mechanics and scoring mechanisms
- elementary game and utility theory
- media & communication theory
- game interaction patterns
- practical applications of serious games

Students are required to work in teams of 2-4 people, with as a goal the actual development of a serious game, with social network support.

course outline Each year a special theme will be selected around which an actual serious game will be built, in teams of 2-4 students. The course will take a multi-disciplinary approach, accommodating the variety in background and interests of the students, which may cover the range of game concept design, including social game dynamics, societal issues and game technology, including both programming, asset development and delivery and deployment issues.

The course will cover two months of intensive work, of which the first month will be devoted to learning elementary game development techniques, and the second month to develop the serious game application, including an assessment of the (potential) effectiveness of the approach.

Apart from theoretical lectures, there will be regular workshops and presentation sessions in which the students present their work and get feedback.

mode of tuition group lectures, small group workshops, presentation sessions and practicum. Students are expected to co-author a wiki about serious games, social patterns and game technology.

For supervision, help of post-docs (or student assistants) would be welcome, preferably with in-depth knowledge of game development platforms and technology.

grading Final grading will be determined by:

- (20%) basic assignments game development
- (30%) essay on one of the theoretical topics in serious games
- (10%) presentation in class
- (40%) delivery and presentation of the final application

technology For the basic assignment, consisting of a simple game world with first person interaction, the *unity* platform will be used.

For the final assignment, apart from basic HTML, CSS and possibly PHP, students will have a choice of using

- the unity game development environment[1]
- ximpel interactive video with minigames in flex/as3[2]
- html5 canvas with javascript[3]

The viability of the options depends on the technical background of the students, previous experience, and the actual (serious) game concepts.

benefits & pitfalls Students will gain awareness of game design, become familiar with the practical use of game technology, game concept development, and practice communication and project planning, as well as cooperation in a multi-disciplonary team, and the delivery of oral and written reports.

A critical issue is the choice of suitable topics, which is preferably done with an external partner. A sufficient level of technical expertise is required, at least for a majority of students following the course. The structure of supervision should be such that creativity is stimulated, in order to maintain a high level of motivation.

[1] unity3d.com
[2] ximpel.net
[3] projessingjs.org

background & motivation In the reflection for the *jaargesprek 2010*[4], I made the following remark (in dutch):

> *Mede dankzij zeer getalenteerde en enthusiaste studenten blijft het (multimedia & game development) een mooi vakgebied en, met inspiraties zoals PICNIC, TEDX Amsterdam, en de verkenning van* Stichting Toekomstbeeld der Techniek[5] *naar* serious games*, een uitdaging om dit in onderwijs en onderzoek vorm te geven. Hopelijk is er na mijn terugkeer van mijn sabbatical jaar ruimte om deze uitdaging weer op te pakken, en dan met de ondersteuning die deze activiteiten verdienen.*

Over the past years I have been involved in game technology, with a growing interest not only in technology but also in thedesign and actual development of (serious) games. See the references below.

Wellknown are the examples of serious games that deal with awareness of societal and political issues, such as Dafur is Dying, or *world without oil*[6], co-developed by Jane McGonical[7], a true evangelist of serious games for a better world. Of interest are also serious games for education, for example for math and language, such as MijnNaamIsHaas[8], and e-health, as offered by the dutch company virtuagym[9], that aims at a close integration of games and social networks. For both latter companies, I have had a number of master thesis students working on a thesis project, among who two cum laude students!

With my students *creative technology* at the University of Twente, we am currently investigating how Bentham's original hedonic calculus[10] can be taken as an inspiration to guide behavior by feedback mechanisms, in cooperation with T-Xchange (*knowlegde center for serious games*) for the theme – *het nieuwe werken*. Such issues are worth exploring in a course as proposed, and in the focus of attention of the people I have contacts and (potential) colloboration with:

- dr. Jacco van Uden – Stichting Toekomstbeeld der Techniek[11]
- dr. Johan de Heer – T-Xchange[12]
- prof. dr. Elly Konijn, dr.dr. Johan Hoorn – CAMERA[13]
- prof. dr. Lynda Hardman, dr. Frank Nack – UvA

Recently I had a meeting with prof. dr. Lynda Hardman and dr. Frank Nack (UvA), to discuss possible cooperation between UvA and VU for master course(s) in the area of entertainment, multimedia and games.

Further references to material and publications are given below. In conclusion, I may remark that a course as proposed may, from many prspectives, be a welcome change to the *multimedia @ VU* curriculum. A change we can believe in, seriously!

[4] www.cs.vu.nl/∼eliens/cv/overview-10.html
[5] www.stt.nl
[6] worldwithoutoil.org/metaabout.htm
[7] janemcgonigal.com
[8] www.mijnnaamishaas.nl/
[9] virtuagym.nl
[10] philosophy.lander.edu/ethics/calculus.html
[11] www.stt.nl
[12] www.txchange.nl
[13] camera.vu.nl

online resource(s)

- introduction game development – www.cs.vu.nl/∼eliens/media/part-v.html
- (serious) game topics – www.cs.vu.nl/∼eliens/create/@s5-theme-game.html
- gamification – www.cs.vu.nl/∼eliens/create/@s5-game-dynamic.html
- social pattern(s) – www.cs.vu.nl/∼eliens/create/@s5-social-game.html

In addition, many practical resources are available from previous courses in multimedia, see e.g.

- sites.google.com/site/multimediatechnologyvu/technology-wiki-s
- sites.google.com/site/multimediaprojectvu/resource-s
- sites.google.com/site/ximpelinteractivevideo
- sites.google.com/site/createtrack/resource-s

These resources contain material developed by master students mCS/MM at VU, and by *creative technology / new media* students from the University of Twente, that may be re-used and adapted by the students following the course.

selected publications

- Eliëns A., Creative Technology – the CTSG: game design in 7 steps, In Proc. GAME-ON Asia 2010, Mao W. and Vermeersch L. (eds.), Shanghai, EUROSIS, pp. 53-57
- Eliëns A., Elements of a chinese language game, In Proc. GAME-ON Asia 2010, Mao W. and Vermeersch L. (eds.), Shanghai, EUROSIS, pp. 77-82
- Eliëns A. & Ruttkay Z., Record, Replay & Reflect – a framework for understanding (serious) game play, In Proc. EUROMEDIA, april 2009, Brugge, pp. 42-48
- Eliëns A. & Ruttkay Z., Math Games – an alternative (approach) to math education?, In Proc. GAME-ON 09, 10th Int. Conference on Games and Simulation, Breitlach (ed.), November 26-28, Dusseldorf, Germany, pp. 68-72
- Eliëns A., Huurdeman H., van de Watering M., Bhikharie S.V., XIMPEL Interactive Video – between narrative(s) and game play, Proc. GAME-ON 08, Nov 17-19, Valencia, Spain
- Eliëns A., van de Watering M., Huurdeman H., Bhikharie S.V., Lemmers H., Vellinga P., Clima Futura @ VU – communicating (unconvenient) science, In Proc. GAME-ON 07, Nov 20-22, University of Bologna, Marco Roccetti (ed.), pp. 125-129, EUROSIS-ETI Publication
- Eliëns A. Feldberg F., Konijn E., Compter E., VU @ Second Life – creating a (virtual) community of learners, In Proc. EUROMEDIA 2007, L. Rothkrantz and Ch. van der Mast (eds), pp. 45-52, Eurosis-Eti Publication, (best paper award nomination)
- Eliëns A. & Chang T., Let's be serious – ICT is not a (simple) game, FUBUTEC 07, Eurosis, Delft, April 2007
- Eliëns A., S.V. Bhikharie, game @ VU – developing a masterclass for high-school students using the Half-life 2 SDK , In Proc. GAME'ON-NA 2006, P. McDowell ed., Eurosis-ETI, pp. 49-53, Sept 19-21, Monterey, USA