creative technology – it's all in the game

from a *new media* perspective

A. Eliëns, 2009

abstract In this presentation, we will look at developments in computer science and engineering and argument the necessity of a new approach to teaching and research, in which exploratory development and creative applications inspired by new media practice(s) play a pivotal role.

Analyzing the potential benefits and pitfalls of this new approach, we will discuss issues of aesthetics, literacy and technology and establish criteria for meaningful (human-oriented) creative applications, which may be summarized by the notions of *challenge*, *curiosity*, *control* and *context*, which together may form the foundation for *value-oriented design.*

<div align="right">http://create.eliens.net</div>

question(s)

1. **personal** – what makes life (more) **beautiful**?
2. **professional** – how can your discipline/expertise **contribute** in making (**digital**) life more beautiful?
3. **general** – what is the (greatest) **risk** of *creative technology*?

<div align="right">_ .. / innovation(s) / theory of mind(s) / secondlife(s) / force(s) / _ / .
twinkle(s) / difference(s)</div>

game(s) / persuasive(s) = story + dilemma(s)

... *relationships* are things that happen only in a *virtual world*, and we are able to move *backwards* and *forwards* between the *physical world of interactions* (*real events*) and the virtual world in which these events are *constituted into relationships* in order to be able to *understand* what the *significance of specific actions* is or might be, or *how two relationships impinge upon eachother*. Robin Dunbar – The Human Story (p. 66)

<div align="right">play / rethoric(s) / physic(s) / math(s) / cycle(s)</div>

... / skin(s) / obstacle(s) / place(s) / failure(s) / culture(s) / _ / .

<div align="right">twinkle(s) / difference(s)</div>

form(s) / design = to initiate change in man-made things

<div align="right">methods / guide(s) / student(s) / parent(s) / teacher(s)
play / game(s) / rule(s) / teaching(s) / visual(s) / project(s) / cycle(s)</div>

challenge(s) – the supposed maturity of engineering

<div align="right">engineering / ICT challenge(s) [3/5]</div>

concept(s)

- everything is miscellaneous – site[1]

model(s)

- business model – *what is web 2.0?* (article[2])

problem(s)

- identity 2.0 – who is the dick on my site(s)[3]

creative technology – target(s)

- program to enhance students' participation and creativity

---

[1] www.everythingismiscellaneous.com
[2] www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html
[3] identity20.com/media/ETECH_2006

solution(s) – multimedia/design in context

slogan(s) – approach / with subtext(s) _ .. / inspiration(s) / dilemma(s) / _ / .
identity / creativity

- (cheap) philosophy – leads to ignorance and self-satisfaction
- colloquial wisdom – is an internet commodity
- common sense – only results in confusion

creative thinking
/ play / tribe(s) / network(s) / identity / flow(s) / chart(s) / cycle(s)

random thought(s) – why always square screens?

rhethorics
of ←− personal challenge
material

model(s) – the creative process

model(s) of dissemination – dialectic(s) of awareness pathology
- **viral game(s)/clip(s)**
- creativity is contagious
- **the (digital) seduction of a civilisation**

perspective(s) – aesthetic awareness

perspective(s) – innovation as an expression of ignorance
- frankfurt airport – **multimedia walkway**
- shanghai river tunnel – **visual experience**
- shanghai shopping – full (globe) video
- etcetera – **visual quilt**, **PANORAMA**, ...

issue(s) – creative technology track(s)

slogan(s) – creative technology / *starting from 1st year*

...
/ social / process / change(s) / design(s) / space(s) / _ / .
- **identity** [me] – as a **group**/**role(s)**/difference(s)
- **portfolio** – [I repeat]: as individual/collaboration(s)
- **imagination** – mixing **science & art**/creativity is contagious
- **authenticity** – as in **no bullshit**/critical/problem(s) [X] ?
- **craftmanship** – discovering **rethorics of the material** [X]

play / game(s) / project(s) / experiment(s) / cycle(s)

mechanism(s) – educational element(s)
- (art) **inspiration(s)** – item(s) of beauty
- (periodic) **de-construction(s)** – discover (un)truth(s)
- (technical) **exploration(s)** – trial(s) without error(s)

- (creative) **workshop(s)** – to boost the imagination(s)

control(s) – layered mentorship
- supervision(s) – from multiple perspectives
- **(peer) reviews** – with mild competitive edge
- (public) exhibition(s) – for external **exposure**

dialectic(s) – literacy / spark(s)

slogan(s) – dilemma(s) / how to teach attitude(s) & creativity

...
/ social / process / change(s) / design(s) / space(s) / _ / .

1. *implicit* – confusion is the origin of creativity – there is no theory / creativity killers
2. *explicit* – (amateur) course(s) on creativity, philosophy, psychology – computational art
3. **by example(s)** – invite artist(s) & pioneer(s) – teaching creativity / dead media
4. **design case(s)** – facets of fun – on the design of computer augmented entertainment artefacts
5. **target(s)** – generation Y / rip it / creative thinking / loser(s) / leader(s) / vision(s) / definition(s)

design – art, science or form of mathematics?   _ .. / role(s) / life(s) / form(s) / HCI / obstacle(s) / science / _ / .

	divergence	transformation	convergence
community	*experience*	...	value analysis
system(s)	brainstorming	...	...
product(s)	...	...	dependency graphs
component(s)	...	...	*requirements*

John Chris Jones – Design Methods
/ play / tribe(s) / network(s) / identity / flow(s) / chart(s) / cycle(s)

design(s) – attitude(s) to innovation / resistance to change

_ .. / ... / change(s) / method(s) / obstacle(s) / instinct(s) / target(s) / _ / .   innovation(s) / collaboration(s)

... the main conclusion that follows from our description of **attitudes to innovation**, except at the very ends of the chain, there is an **inherent resistance to the kinds of radical change** at the systems level that seems to be **necessary to solve the major design and planning problems of our time** ...

John Chris Jones – Design Methods
/ play / tribe(s) / network(s) / identity / flow(s) / chart(s) / cycle(s)

reference(s) – bibliography

Abbott A. (2001a), *Chaos of Disciplines*, Chicago University Press

Abbott A. (2001b), *Time matters – on theory and method*, Chicago University Press

Abell P. (1987), *The syntax of social life – the theory and method of comparative narratives*, Clarendon Press

Alberti L.B. (1435), *On painting and on sculpture*, Phaidon, edited by C. Grayson, 1972

Arnheim R. (1957), *Film as Art*, University of California Press

Ashihara Y. (1986), *The Hidden Order – Tokyo through the Twentieth Century* , Kodansha Int.

Barabasi A-L. (2003), *Linked – how everything is connected to everything else and what it eans for business, science and everyday life*, Plume

Barrat A., Barthelemy M and Vespignani A. (2008), *Dynamical Processes on Complex Networks*, Cambridge University Press

Bell G. (2009), *Building Social Web Applications*, O'Reilly

Benjamin W. (1936), *The Work of Art in the Age of Mechanical Reproduction*, Online Archive – http://www.marxists.org

Bernhaupt R. (ed) (2010), *Evaluating User Experiences in Games*, Springer

Bodanis D. (1986), *The Secret House – The Extraordinary Science of an Ordinary Day*, Berkley Books, New York

Bodanis D. (2005), *Electric Universe – The Shocking True Story of Electricity*, Random House

Bogost I. (2007), *Persuasive Games – the expressive power of videogames*, MIT Press

Bollobas (2006), *The Art of mathematics – Coffe Time in Memphis*, Cambride University Press

Bolter J.D and Grusin R. (2000), *Remediation – Understanding New Media*, MIT Press

Brown T. (2009), *Change by Design – how design thinking transforms organizations and inspires innovation*, Harper-Collins Publishers

Burger E.B. and Starbird M. (2010), *The heart of mathematics – an invitation to effective thinking*, Wiley (3rd edition)

Burger P. (1981), *Theorie der Avantgarde*, Edition Suhrkamp

Buruma I. and Margalit A. (2004), *Occidentalism – A Short History of Anti-Westernism*, Atlantic Books, London

Buxton B. (2007), *Sketching User Experiences – getting the design right and the right design*, Morgan Kaufmann

Csikszentmihalyi M. (1991), *Flow – the psychology of optimal experience*, Harper Perennial

Dourish P. (2004), *Where the action is – the foundation of embodied interaction*, MIT Press

Dunbar R. (2004), *The Human Story – A new history of mankind's evolution*, Faber and Faber

Easley D. and Kleinberg J., *Networks, crowds and Markets – reasoning about a highly connected world*, Cambridge University Press

Edelman G.M. (2006), *Second Nature – brain science and human knowledge*, Yale University Press

Elam K. (2001), *Geometry of Design*, Princeton Architectural Press, New York

Eliens A. (1979), Creativity: reflection and involvement, Ninth Int Conf of Aesthetics, Dubrovnic, August 1979

Eliens A. (1988), Computational Art, First Int Symposium on Electronic Art, Leonardo Supplementary Issue, Pergamon Press 1988, pp. 21-26

Eliens A. (1992), *DLP – A language for Distributed Logic Programming*, Wiley

Eliens A. (2000), *Principles of Object-Oriented Software Development*, Addison-Wesley Longman, 2nd edn.

Eliens A., Huang Z., and Visser C. (2002), A platform for Embodied Conversational Agents based on Distributed Logic Programming, AAMAS Workshop – Embodied conversational agents - let's specify and evaluate them!, Bologna, Italy

Eliens A., van Riel C., Wang Y. (2006), Navigating media-rich information spaces using concept graphs – the abramovic dossier, Proc. Int. Conf. on Information Sciences and Technologies (InSciT2006), Merida, Spain

Eliens A. and S.V. Bhikharie (2006), *Game @ VU – developing a masterclass for high-school students using the Half-life 2 SDK*, In Proc. GAME-ON NA 2006, Monterey, USA

Eliens A. (2006), Odyssee – explorations in mixed reality theatre, In Proc. GAME-ON NA 2006, Monterey, USA

Eliens A., Wang Y. van Riel C. and Scholte T. (2007), 3D Digital Dossiers – a new way of presenting cultural heritage on the Web, In Proc. Web3D 2007, ACM SIGGRAPH, pp. 157-160

Eliens A. and Chang T. (2007), Let's be serious – ICT is not a (simple) game, In Proc. FUBUTEC 2007, Delft, Netherlands

Eliens A. Feldberg F., Konijn E., Compter E. (2007a) , VU @ Second Life – creating a (virtual) community of learners, In Proc. EUROMEDIA 2007, Delft, Netherlands

Eliens A., van de Watering M., Huurdeman H., Bhikharie S.V., Lemmers H., Vellinga P. (2007b), Clima Futura @ VU – communicating (unconvenient) science, In Proc. GAME-ON 2007, Bologna, Italy

Eliens A. Feldberg F., Konijn E., Compter E. (2007c) , Mashups in Second Life @ VU, In Proc. GAME-ON 2007, Bologna, Italy

Eliens A. and Vyas D. (2007), *Panorama – explorations in the aesthetics of social awareness* , In Proc. GAME-ON 2007, Bologna, Italy

Eliens A. and Wang Y. (2007), Expert advice and regret for serial recommenders, In Proc. EUROMEDIA 2007, Delft, Netherlands

Eliens A., Huurdeman H., van de Watering M., Bhikharie S.V. (2008), XIMPEL Interactive Video – between narrative(s) and game play, In Proc. GAME-ON 2008, Valencia, Spain

Eliens A. and Ruttkay Z. (2008), Record, Replay & Reflect – a framework for understanding (serious) game play, In Proc. Euromedia 2009, Brugge, Belgium

Eliens A. and Ruttkay Z. (2009), Math game(s) – an alternative (approach) to teaching math?, In Proc. GAME-ON 2009, Dusseldorf, Germany

Eliens A. (2010), Creative Technology – the CTSG: game design in 7 steps, submitted to GAME-ON Asia 2010, Shanghai, China

Erickson J. (2008), *Hacking – the art of exploitation*, No Starch Press

Esslinger H. (2009), *a fine line – how design strategies are shaping the future of business*, Jossey-Bass Wiley

Falk D. (2008), *In search of time – the science of a curious dimension*, St Martin's Press, New York

Feynman R.P. (1963), *Six Easy Pieces*, Basic Books

Field S. (2005), *Screenplay – the foundations of screenwriting*, Revised edition, Delta

Flanagan M. (2009), *Critical Play – Radical Game Design*, MIT Press

Gill E. (1988), *An Essay on Typography*, David Godine Publisher

Glass R.L. (2006), *Software Creativity 2.**, developer.* books

Goldstone W. (2009), *Unity Game Deevelopment Essentials*, Packt Publishing

Grau O. (2003), *Virtual Art – From Illusion to Immersion*, MIT Press

Graves-Petersen M., Iversen O.S., Gall Krogh P., Ludvigsen M. (2004), Aesthetic Interaction – A Pragmatist's Aesthetics of Interactive Systems, Proc. DIS2004, Cambridge Mass. USA, pp. 269-276

Greene B. (2000), *The Elegant Universe – Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory*, Vintage Books

Hacking I. (1990), *The taming of chance*, Cambridge University Press

Hallnäss L. and Redström J. (2002), From Use to Presence: On the Expressions and Aesthetics of Everyday Computational Things, ACM Trans. on Computer-Human Interactions, Vol. 9, No 2, pp. 106-124

Hardy G.H. (1940), *A mathematician's apology*, Cambridge University Press

Harrision K. (2007), *Your Body – the fish that evolved*, Metro

Hazlitt W. (1826), *On The Pleasure of Hating*, Penguin

Himmelfarb (1989), *Marriage and Morals among the Victorians and other essays*, O.B. Taurus & Co Ltd.

Hoffman P. (1998), *The man who loved only numbers – the story of Paul Erdös and the search for mathematical truth*, Hyperion New York

Jarvis J. (2009), *What would Google do?*, Harper

Jewis E.E. (2004), *Masterworks of Technology – The Story of Creative Engineering, Architecture and Design*, Prometheus Books

Johnson P. (2006), *Creators – from Chaucer to Walt Disney*, Phoenix

Johnstone K. (1981), *IMPRO – improvisation and the theatre*, Routledge

Jones J.C. (1092), *Design Methods*, Wiley (2nd edn)

Juul J. (2005), *Half Real – Video Games between Real Rules and Fictional Worlds*, MIT Press

Juul J. (2010), *A Casual Revolution – reinventing video games and their players*, MIT Press

Kagen S. (1950), *On Studying Singing*, Dover Publications, New York

Kaplan R. (1999), *The Nothing That Is – A Natural History of Zero*, Oxford University Press

Kant E. (1781), *Kritik der reinen Vernunft*, Felix Meiner Verlag, ed. 1976

Kress G. and van Leeuwen T. (1996), *Reading Images: The Grammar of Visual Design*, Routledge

Leavis J.R. (1982), *The critic as anti-philosopher*, Ivan R. Dee, Inc.

Lewes G.H. (1865), The Principles of Success in Literature, Fortnightly Review 1

Malouf D. (1978), *An Imaginary Life*, Picador

Mark D. (2009), *Behavioral Mathematics for Game AI*, Charles River Media

Marukami H. (2008), *What I Talk About When I Talk About Running*, Alfred A. Kampf, New York

McCullough M. (2004), *Digital Ground – Architecture, Pervasive Computing and Environmental Knowing*, MIT Press

McKee R. (1997), *Story – substance, structure, style and the principles of screenwriting* , itbooks

McKenzie Wark (2007), *Gamer Theory*, Harvard University Press

Menand L. (1987), *Discovering Modernism – T.S. Eliot and his context*, Oxford University Press

Montola M, Stenros J. and Waern A. (2009), *Pervasive Games – Theory and Design / experiences on the boundaries between life and play*, Morgan Kaufmann

Munari B. (1966), *Design as Art*, Penguin Books

Nachmanovitch S. (1990), *Free Play – Improvisation in Life and Art*, Tracher Penguin

Nisan N., Roughgarden T., Trados E. and Vazirani V. V. eds. (2007), *Algorithmic Game Theory*, Cambridge University Press

Nitsche M. (2008), *Video Game Spaces – Image, Play and Structure in 3D Worlds*, MIT Press

Norman D.A (1990), *The Design Of Everyday Things*, Basic Books

Petroski H. (1982), *To Engineer is Human – The Role of Failure in Successful Design* , Vintage Books

Petroski H. (1989), *The Pencil – a history of design and circumstance* , Alfred A. Knopf

Petroski H. (1992), *The evolution of useful things*, Vintage Books

Petroski H. (2006), *Success through Failure – the paradox of design* , Princeton Press

Reas C. and Fry B. (2007), *Processing – a programming handbook for visual designers and artists*, MIT Press

Sartre J.P. (1936), *L'imagination*, Presse Universitaire de France, ed. 8, 1971

Schell J. (2008), *The Art of Game Design – A Book of Lenses*, Morgan Kaufmann

Schrenk M. (2007), *Webbots, spiders and screen scrapers*, No Starch Press

Shaftoe H. (2008), *Convivial Urban Spaces – Creating Effective Public Places*, EarthScan Publishing

Si Yin and Eliens A. (2007), PANORAMA – A Rich VRML Application Platform For Online Gaming, Workshop Web 3D Games, Web3D Symposium 07, Perugia Italy, April 15-18

Steiner G. (2008), *Is Science Nearing its Limits?*, Fundacio Calouste Gulbenkian

Strogatz S. (1994), *Nonlinear Dynamics and Chaos – with applications to physics, biology, chemistry and engineering*, Princeton University Press

Strogatz S. (2000), *Sync – how order emerges from chaos in the universe, mature and daily life*, Hyperion, New York

Strogatz S. (2009), *The Calculus of Friedship*, Princeton University Press

Stuttard D. and Pinto M. (2008), *The Web Application Hacker's Handbook*, Wiley

Taleb N.N. (2007), *The Black Swan – the impact of the highly improbable*, Penguin Books

Thackara J. (ed.) (1988), *Design after Modernism – Beyond the Object*, Thames and Hudson

Thorp H. and Goldstein B. (2010), *Engines of Innovation – the entrepreneurial university in the twenty-first century*, University of North Carolina Press

Turmel A. (2008), *A historical sociology of childhood – developmental thinking, categorization and graphical visualization*, Cambride University Press

Vyas D., van de Watering M., Eliens A., van der Veer G. (2007), Engineering Social Awareness in Work Environments, Proc. HCI International 2007, 22-27 July, Beijing, China

Vyas D. van de Watering M., Eliens A., van der Veer G. (2007b), *Being Social @ Work: Designing for Playfully Mediated Social Awareness in Work*, Proc. *HOIT 2007*, Chennai, India in August 2007

Wardrip-Fruin N. (2009), *Expressive Processing – Digital Fictions, Computer Games, and Software Studies*, MIT Press

Winfree A.T. (2010), *The Geometry of Biological Time*, Springer

Wright R. (2000), *Nonzero – the logic of human destiny*, Vintage Books

Zielinski S. (2006), *Deep Time of the Media – Towards an archaeology of Hearing and Seeing by Technical Means*, The MIT Press