RADIOLOOGILISED UURIMISMEETODID ÄRI JA MEELELAHUTUSE TEENISTUSES

Kärt Seer
Kolmapäevaseminar
22.02.2012

10.02.2011 – Esimene Euroopa radioloogiapäev

European Society of Radiology:

The aim of the initiative is to give radiology as much publicity as possible and to raise awareness throughout Europe of the ESR and its activities. The ESR aims to provide patients, their relatives and the general public with information on imaging and its role in the healthcare system

10.02.2012 – Teine Euroopa radioloogiapäev?

http://www.myesr.org/

xkcd

A webcomic of romance, sarcasm, math, and language.

www.xkcd.com/radiation

Radiation Dose Chart

This is a chart of the ionizing radiation dose a person can absorb from various sources. The unit for absorbed dose is "sievert" (Sv), and measures the effect a dose of radiation will have on the cells of the body. One sievert (all at once) will make you sick, and too many more will kill you, but we safely absorb small amounts of natural radiation daily. Note: The same number of sieverts absorbed in a shorter time will generally cause more damage, but your cumulative long-term dose plays a big role in things like cancer risk.

- Sleeping next to someone (0.05 μSv)
- Living within 50 miles of a nuclear power plant for a year (0.09 μSv)
- Eating one banana (0.1 μSv)
- Living within 50 miles of a coal power plant for a year (0.3 μSv)
- Arm x-ray (1 μSv)
- Using a CRT monitor for a year (1 μSv)
- Extra dose from spending one day in an area with higher than average natural background radiation, such as the Colorado plateau (1.2 μSv)
- Dental x-ray (5 μSv)
- Background dose received by an average person over one normal day (10 μSv)
- Airplane flight from New York to LA (40 μSv)
- Using a cell phone (0 μSv)—a cell phone's transmitter does not produce ionizing radiation* and does not cause cancer.

* Unless it's a bananaphone.

- Chest x-ray (20 μSv)
- All the doses in the blue chart combined (~60 μSv)
- Extra dose to Tokyo in weeks following Fukushima accident (49 mSv)
- Living in a stone, brick, or concrete building for a year (70 μSv)
- Average total dose from the Three Mile Island accident to someone living within 10 miles (80 μSv)
- Approximate total dose received at Fukushima Town Hall over two weeks following accident (100 μSv)
- EPA yearly release limit for a nuclear power plant (250 μSv)
- Yearly dose from natural potassium in the body (390 μSv)
- Mammogram (400 μSv)
- EPA yearly limit on radiation exposure to a single member of the public (1 mSv–1,000 μSv)
- Maximum external dose from Three Mile Island accident (1 mSv)
- Typical dose over two weeks in Fukushima Exclusion Zone (1 mSv, but areas northwest saw far higher doses)
- Head CT Scan (2 mSv)
- Normal yearly background dose. About 85% is from natural sources. Nearly all of the rest is from medical scans (~4 mSv)
- EPA yearly release target for a nuclear power plant (30 μSv)
- Dose from spending an hour on the grounds at the Chernobyl plant in 2010 (6 mSv if one spot, but varies wildly)
- Chest CT scan (7 mSv)
- Maximum yearly dose permitted for US radiation workers (50 mSv)

= (0.05 μSv)

= (20 μSv)

= (10 mSv)

= (1 Sv)

Ten minutes next to the Chernobyl reactor core after explosion and meltdown (50 Sv)

- Approximate total dose at one station at the northwest edge of the Fukushima exclusion zone (40 mSv)
- All doses in green chart combined (~75 mSv)
- Radiation worker one-year dose limit (50 mSv)
- Lowest one-year dose clearly linked to increased cancer risk (100 mSv)
- Dose received by two Fukushima plant workers (~180 mSv)
- Dose causing symptoms of radiation poisoning if received in a short time (<400 mSv, but varies)

EPA guidelines for emergency situations, provided to ensure quick decision-making:

- Dose limit for emergency workers protecting valuable property (100 mSv)
- Dose limit for emergency workers in lifesaving operations (250 mSv)

- Severe radiation poisoning, in some cases fatal (2000 mSv, 2 Sv)
- Usually fatal radiation poisoning. Survival occasionally possible with prompt treatment (4 Sv)
- Fatal dose, even with treatment (8 Sv)

Sources:

http://www.nrc.gov/reading-rm/doc-collections/cfr/part020/
www.nema.ne.gov/technological/dose-limits.html
http://www.deq.idaho.gov/in_oversight/radiation/dose_calculator.cfm
http://www.deq.idaho.gov/in_oversight/radiation/radiation_guide.cfm
http://nitnse.com/
http://www.bnl.gov/biweb/PDF/03SER/Chapter_8.pdf
http://dels-old.nas.edu/dels/rpt_briefs/rers_final.pdf
http://people.reed.edu/~emcmanis/radiation.html
http://en.wikipedia.org/wiki/Sievert
http://blogs.discovermagazine.com/badastronomy/2010/07/15/hits-the-zone-chernobyl-prip
http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/tritium-radiation-fs.htm
http://www.meti.go.jp/committee/summary/eic0009/pdf/009_s01_00.pdf
http://radiology.rsna.org/content/248/1/254

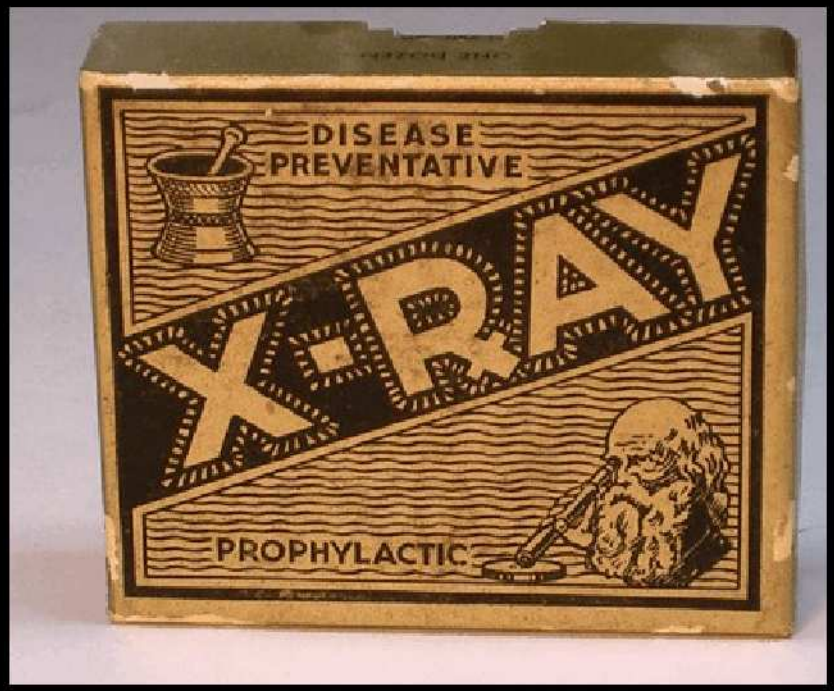
Chart by Randall Munroe, with help from Elser, Senior Reactor Operator at the Reed Research Reactor, who suggested the idea and provided a lot of the sources. I'm sure I've added in lots of mistakes; it's for general education only. If you're basing radiation safety procedures on an internet PNG image and things go wrong, you have no one to blame but yourself.

Röntgenkunstnik Nick Veasey

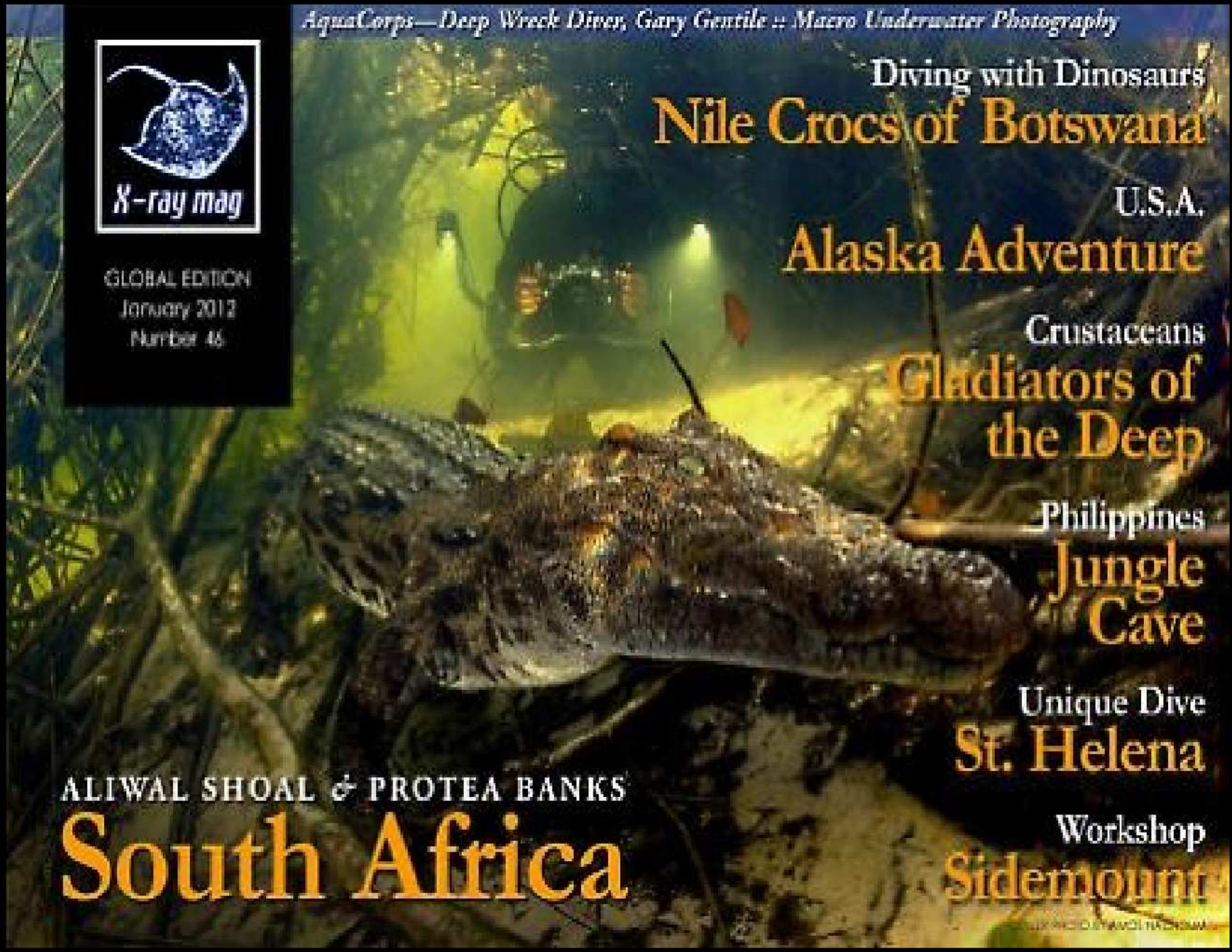
http://www.nickveasey.com/

http://www.nickveasey.com/

Röntgeniga saab reklaamida kõike



Gerson, E.S. X-ray Mania: The X Ray in Advertising, Circa 1895. March 2004 RadioGraphics, 24, 544-551.



http://www.xray-mag.com/

Röntgenprillid

1960. aastate koomiksiraamatureklaam

Nutitelefoni rakendus 2012

http://gajitz.com/

https://market.android.com/

Röntgenpilk (X-*ray vision*)

“X-ray vision” tähendab enamasti riietest või seintest läbi nägemist. 3D ja värvilisena.

Röntgenpilguga tegelased näiteks Supermani, Pokemoni, Harry Potteri lugudes

2008. aasta Super Bowli vaheajal õllereklaam - Bud Light X-ray Vision

http://youtu.be/OCFPs_mb5ig

Ultraheli – ainult rasedatele

Katsikupeo mäng: arva ära, milline loote kehaosa on pildil

Hind: 17.95 dollarit

(või prindi ise kodus välja)

http://www.thebabyshowershop.com.au/

Reklaam kanalile **Eurosport** 1999

http://youtu.be/5ayldvB5Mgg

Kurdetakse, et loote UH pildid on **Facebooki** profiilipildina segadusttekitavad

http://thegloss.com/

KT ja MRT on täiesti ebaolulised röntgeni kõrval

3D KT: arvutimäng Mortal Kombat

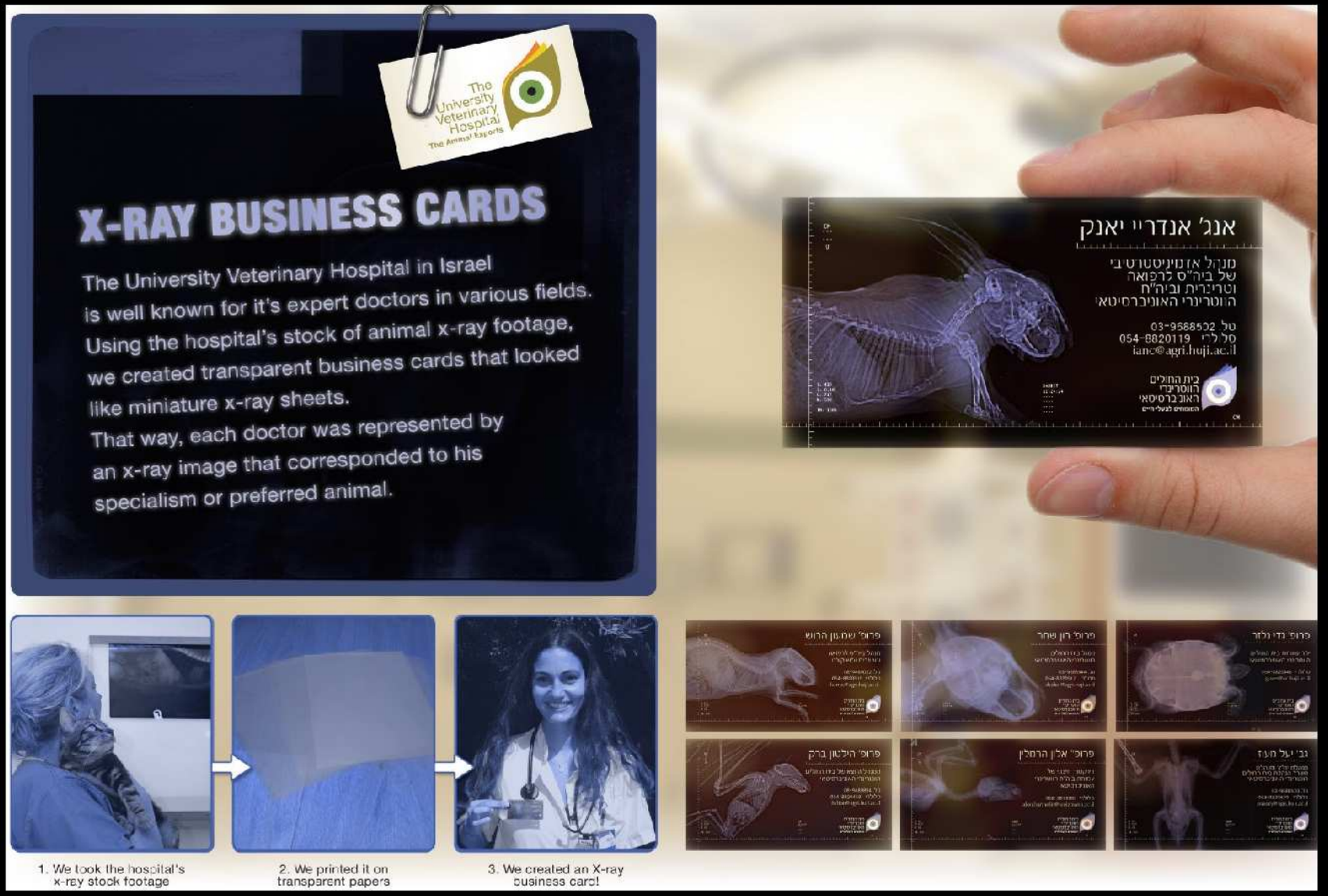
http://mortalkombat2011.com/

MRT: ainult üks väga veider Jaapani TV naljasaade

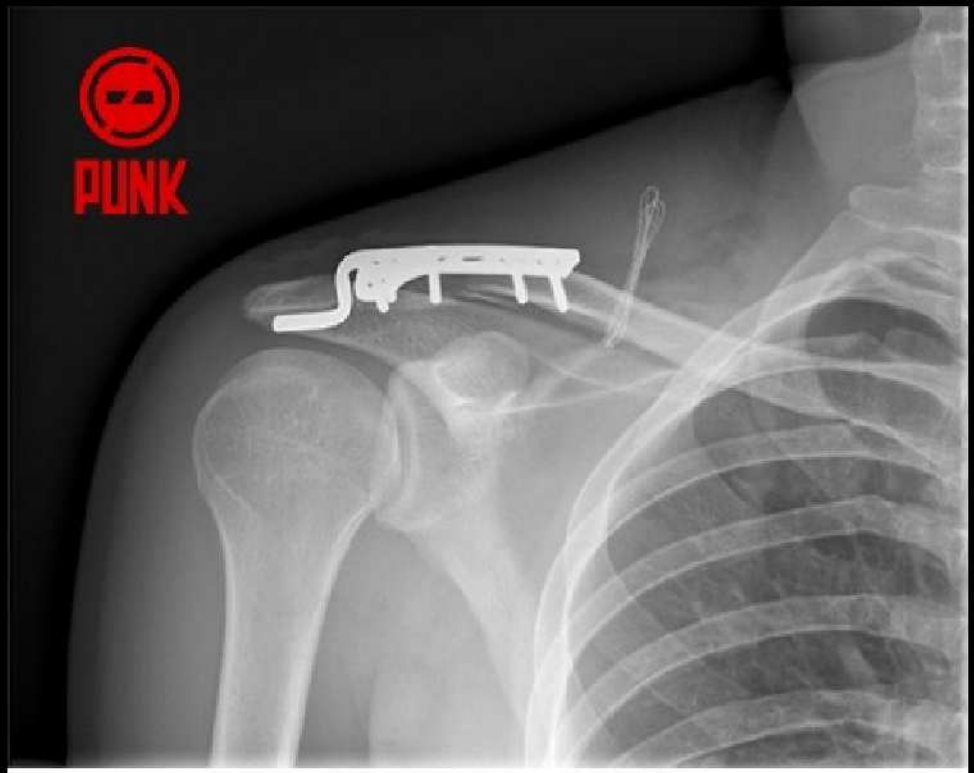
Kuid ohtralt harivaid mänge lastele: näiteks Michigan State University radioloogiaosakonnalt

http://www.rad.msu.edu/KidStuff/MRI%20Game/MRI%20Game.html

Röntgenireklaamid



Iisraeli loomakliiniku arstide visiitkaardid
http://adsoftheworld.com/media/dm/university_veterinary_hospital_xray_business_card



ATTENZIONE! PUNK otsib pead

Meie endine juht on teadmata asukohas ja meie loovjuht pooleks murtud rangluuga haiglas. Olukord on üsna kreisi, töö vajab tegemist ja ilmselgelt oleks meil veidi abi vaja.

Ülesanneteks on 100 talendi haldamine, 100 loovtegelase + klientide otsimine ja nende projektide haldamine. Võimaldame sulle vabad käed, kontori Rotermannis, partneri koha ja kindlasti väljakutse.

Uuele teisitimõtlejast CEO'le tuleb kasuks kogemus või haridus reklaami, turunduse või ärivaldkonnast ning mõni väljamaa keel.

Huvi korral saada CV ja mingi kiri või midagi huvitavat - rauno@punkPUNKpunk.ee

Turundusfirma töökuulutus
www.punkpunkpunk.ee

Suitsetamisvastane prügikastireklaam
http://osocio.org/message/xray_adbins/

http://adsoftheworld.com/media/print/shaws_candies_teeth

Kuvaritootja Eizo kalender 2010

Aprill

September

Radioloogia muusikas

Randy - X-Ray Eyes
Maccabees - X-Ray
Robin Gibb - X-Ray Eyes
Bee Gees - X-Ray Eyes
Guster - X-Ray Eyes
Cacophony - X-Ray Eyes
Steave Means - X-Ray Eyes
Liz Phair - X-Ray Man
Blue Oyster Cult - X-Ray Eyes
Babylon Zoo - The Boy With the X-Ray Eyes
X-Ray Spex - Oh Bondage! Up Yours!
Pretty Rave Girl - I Am X-Ray
Mad Season X-Ray Mind
The Lillingtons - X-Ray Specs
The Beatles - I'm Looking Through You
Lovedrug - Radiology

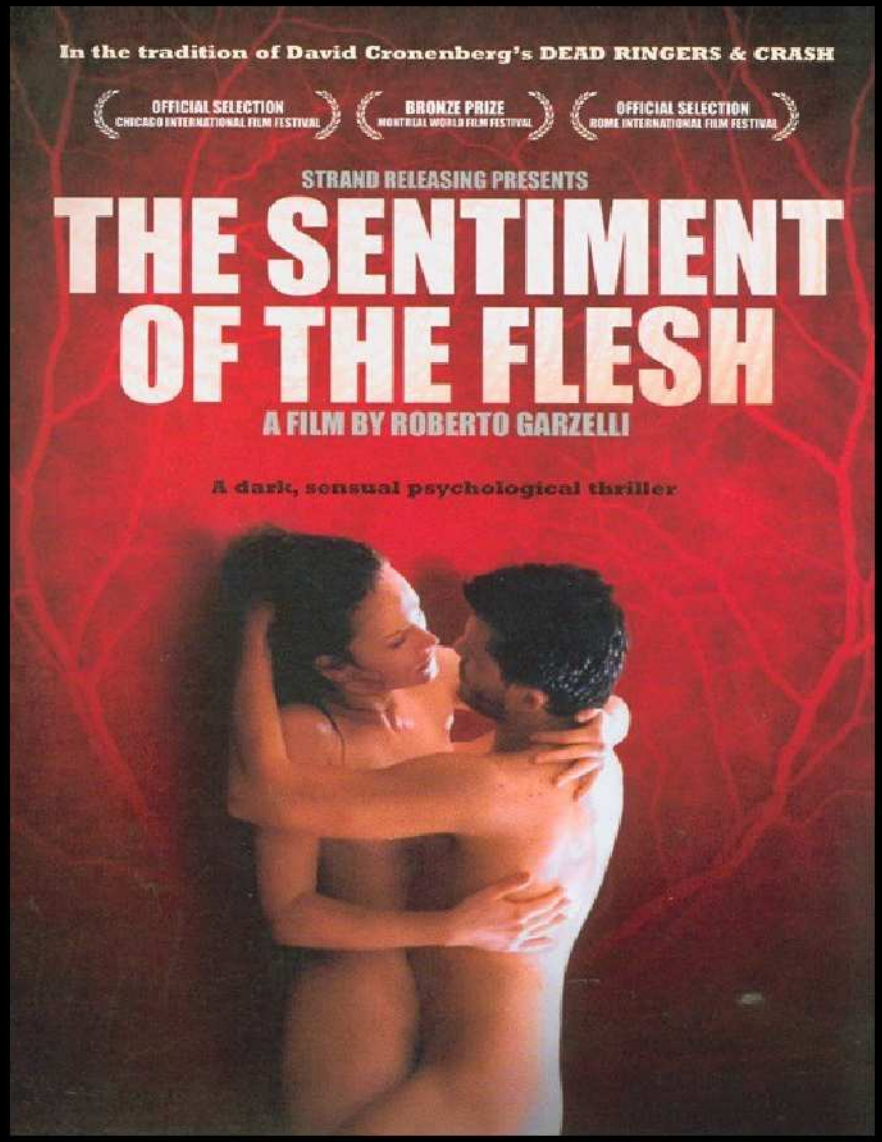
X-Ray Dog (EMI) – toodab muusikat Hollywoodi filmidele

http://www.emipm.com/x-ray_dog.asp

Radioloogia filmides

Prantsusmaa, Suurbritannia 2008. IMDb 5,5/10

http://www.imdb.com/title/tt0906734/



Prantsusmaa 2010. IMDb 6,0/10

http://www.imdb.com/title/tt1740798/

© Original Artist
Reproduction rights obtainable from
www.CartoonStock.com

"We're very thorough at this airport."