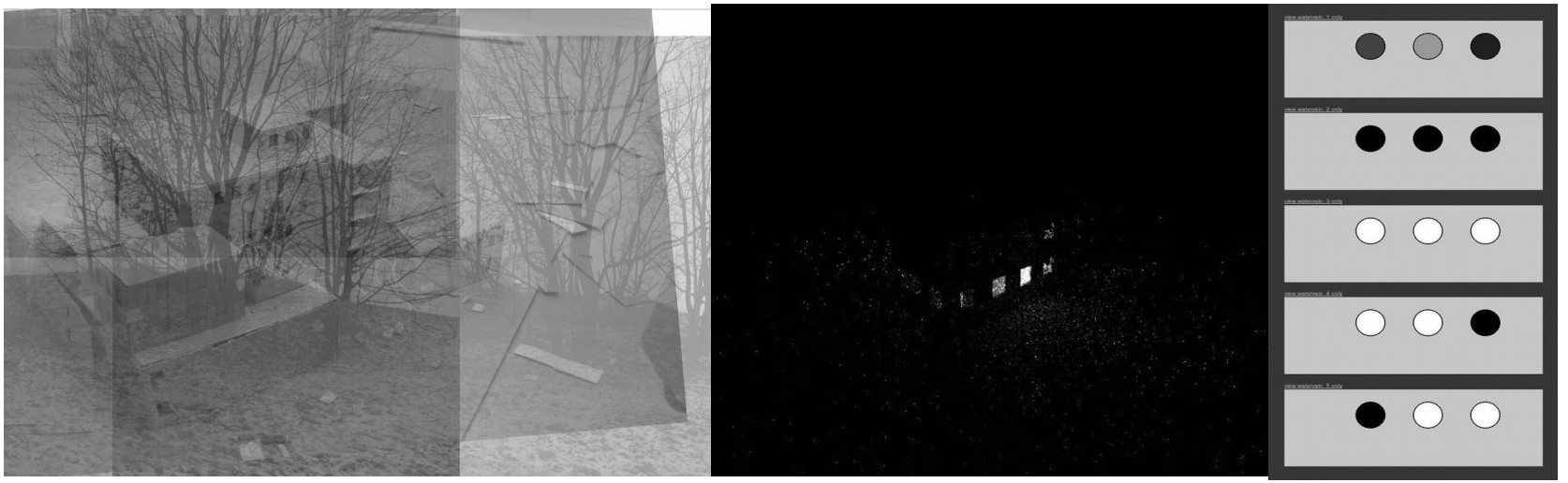
Für den Netzwerkanlass OSS & Schule am 16. Januar 2014

Adriana Mikolaskova Nautsch

Digitale Bilder erzeugen und bearbeiten mit GIMP, Inkscape, Blender und anderen Open Source Tools



Für den Netzwerkanlass OSS & Schule am 16. Januar 2014

Adriana Mikolaskova Nautsch

Open Source Software - Bildung

Open Source Software - Bildung

Verfügbarkeit

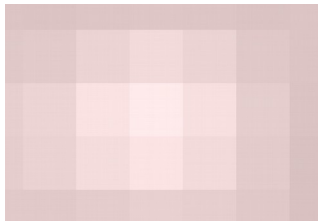
Erforschen des Arbeitgebiets- **Offenheit**

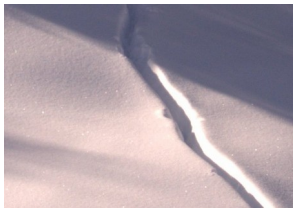
Partizipation – Teilnahme in verschiedenen Bereichen möglich

Digitale Bilder

2D

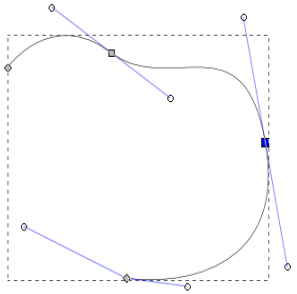
Bitmaps, Raster- /Pixelgrafik
Pixel





PNG, JPEG, TIFF.... XCF, PSD

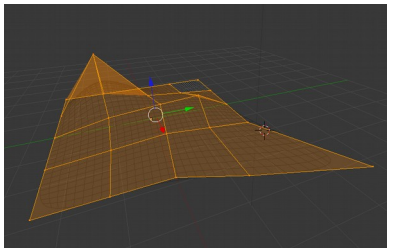
Vektorgrafik
Kurven und Kontrollpunkte

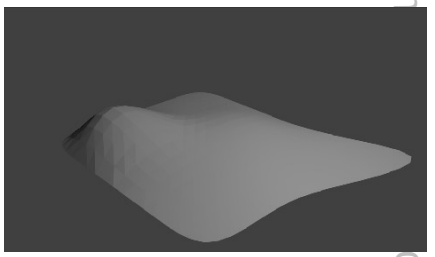


SVG, EPS, ...

3D

Drahtgittermodelle
Punkte, Flächen, Kanten



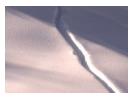


OBJ, X3D, STL... BLEND

4D

Digitales Bildnerisches Gestalten

Digitale Malerei



Rastergrafik

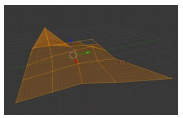
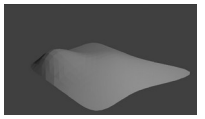
Digitale Fotografie
Manipulation, Collage

3D Animation

3D Modeling

CAD

Layout, DTP

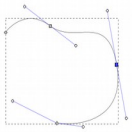



3D-Grafik

Game Design

Schriftgestaltung

Illustrationen




Vektorgrafik

Generative Gestaltung

Daten-Visualisierung

Diagramme

2D **Animation**

Animierte Rastergrafik

Animierte Vektorgrafik

Videoschnitt

Digitale Bilder- Bildnerisches Gestalten

Nicht nur für das Fach 'Bildnerisches Gestalten'

Digitalisierung - Informatik

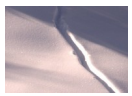
Bilder – Dokumentation – Berichterstattung - Quellen

Visuelle Modelle- Visualisierungen- Infografiken

Gebrauchsgrafik- Soziales

Digitales Bildnerisches Gestalten

Digitale Malerei



Rastergrafik

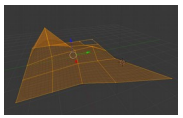
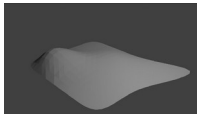
Digitale Fotografie
Manipulation, Collage

3D Animation

3D Modeling

CAD

Layout, DTP

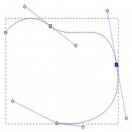



3D-Grafik

Game Design

Schriftgestaltung

Illustrationen




Vektorgrafik

Generative Gestaltung

Daten-Visualisierung

Diagramme

2D **Animation**

Animierte Rastergrafik

Animierte Vektorgrafik

Videoschnitt

Digitale Bilder- Programme

GIMP

Digitale Malerei

3D Modeling

Rastergrafik

Krita

3D-Grafik

Digitale Fotografie
Manipulation, Collage

Scribus

CAD

Blender

Layout, DTP

Inkscape

Game Design

Schriftgestaltung

Illustrationen

3D Animation

Vektorgrafik

Generative Gestaltung

Processing

Robotik

Diagramme

2D **Animation**

Daten-Visualisierung

FontForge

Animierte Rastergrafik

Arduino

DIA

Videoschnitt

Animierte Vektorgrafik

Blender

Synfig

Kdenlive, Avidemux, OpenSho

Generatives Gestalten, Robotik-
Processing, Arduino

Layout – Scribus

Vektorgrafik- Inkscape

Rastergrafik- GIMP
Digitale Fotografie
- Hilfsmittel wie DigiKam, UFRaw ...

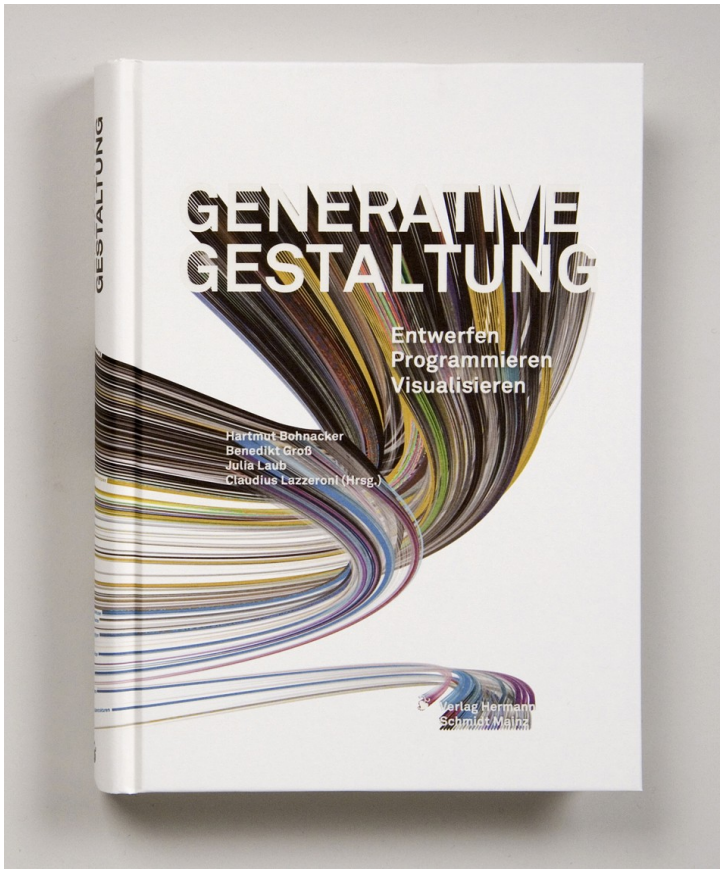
3D Modelling- Blender

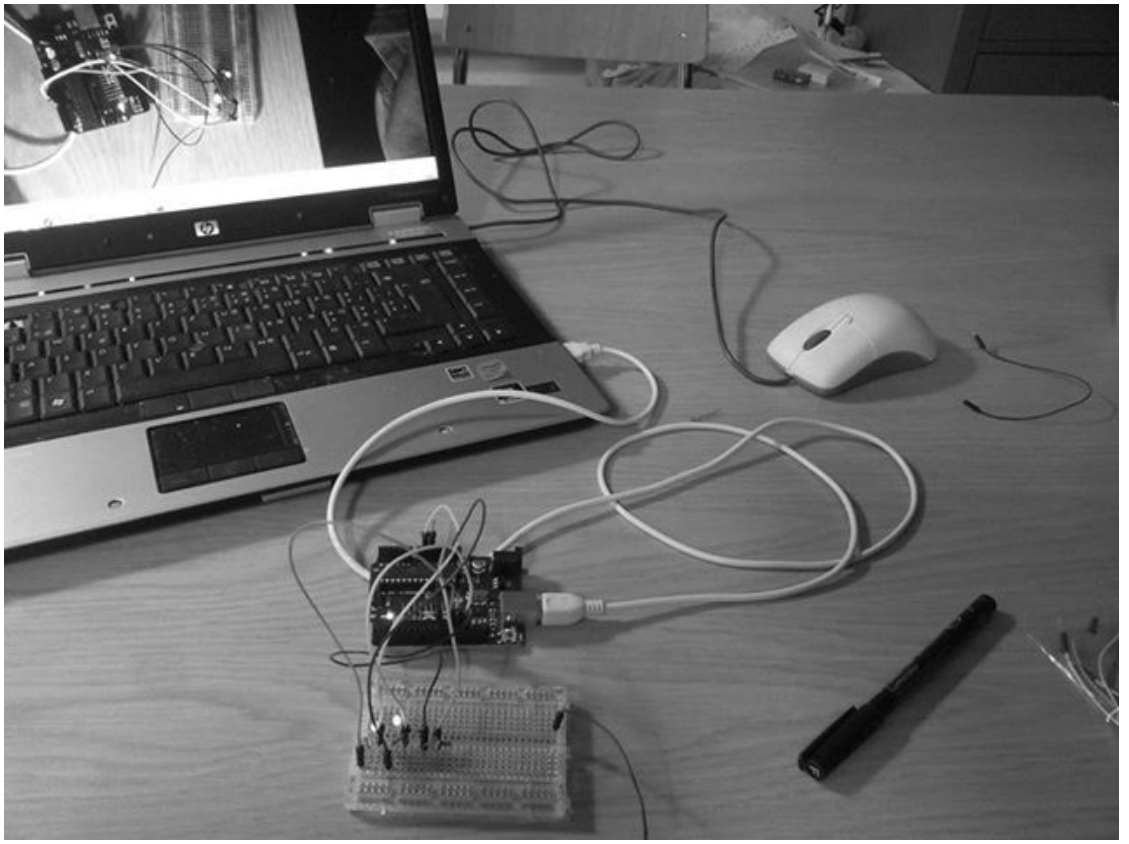
Generative Gestaltung, Robotik... - Processing, Arduino u.a. Open Hardware

http://www.processing.org/  http://arduino.cc 

Generative Gestaltung, Robotik... - Processing, Arduino u.a. Open Hardware

http://www.processing.org/ http://arduino.cc





http://www.generative-gestaltung.de/

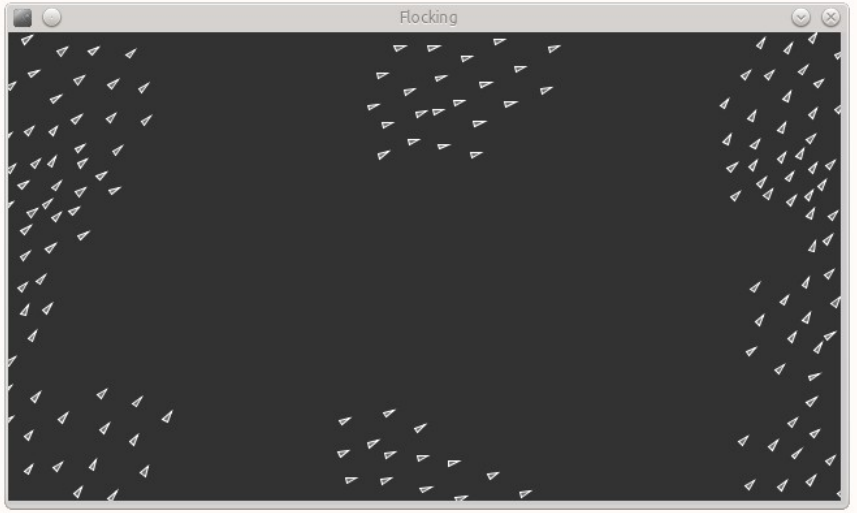
Generatives Gestalten- Processing

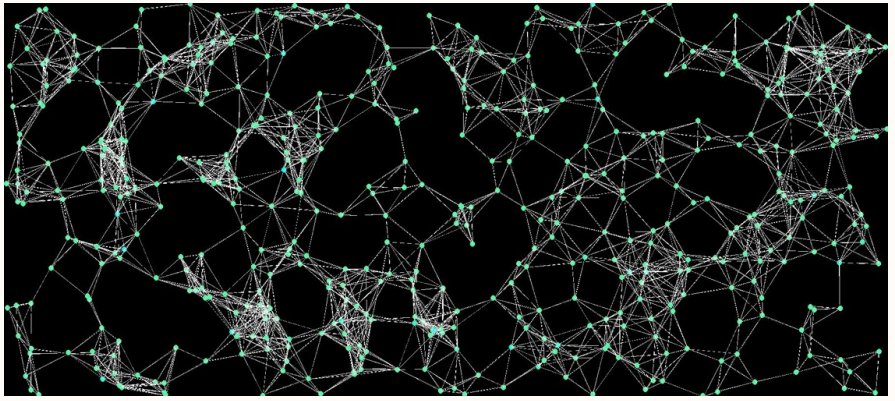
Bilder programmieren, Datenvisualisierung

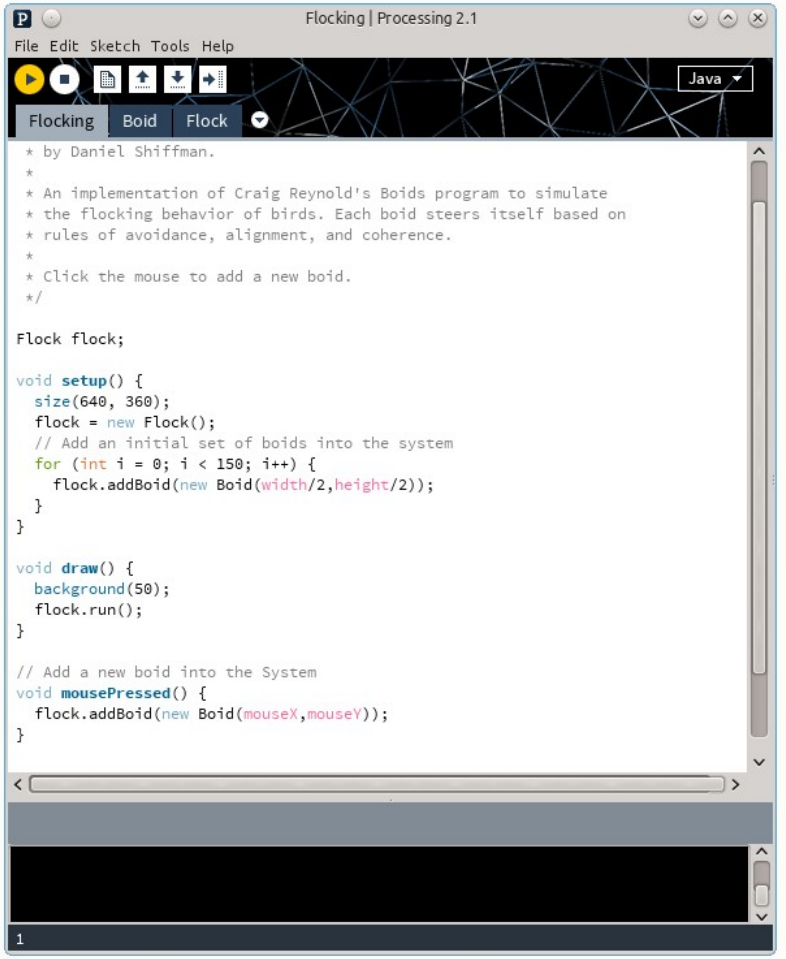
http://www.processing.org/

Stark vereinfachte **Programmiersprache**
integrierte **Entwicklungsumgebung**
für Gestalter, Künstler und Programmieranfänger

Entwicklung seit 2008 am MIT
Ben Fry, Casey Reas



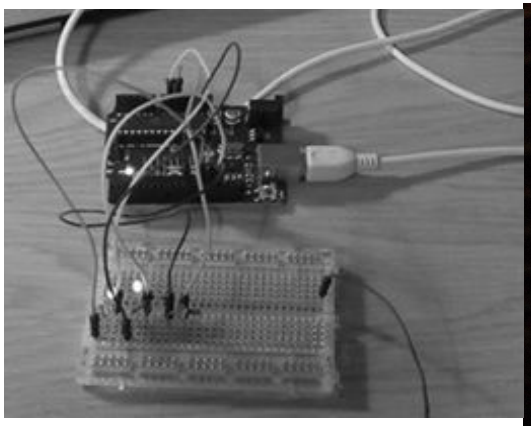


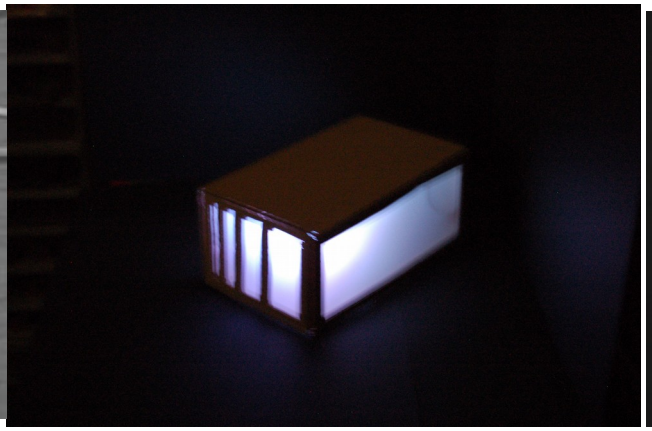


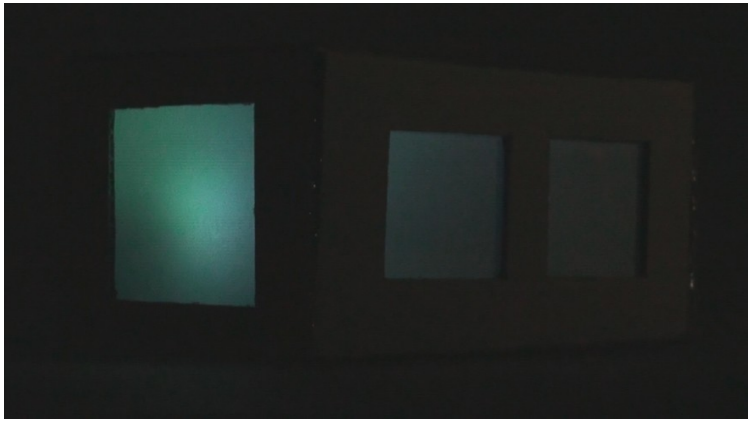
http://www.generative-gestaltung.de/

Generative Gestaltung, Robotik... - Arduino

http://arduino.cc







DTP- Layout - Scribus

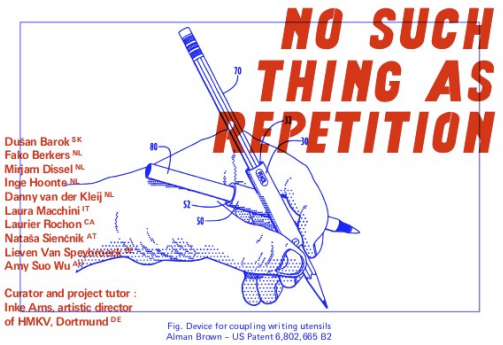
DTP- Layout - Scribus

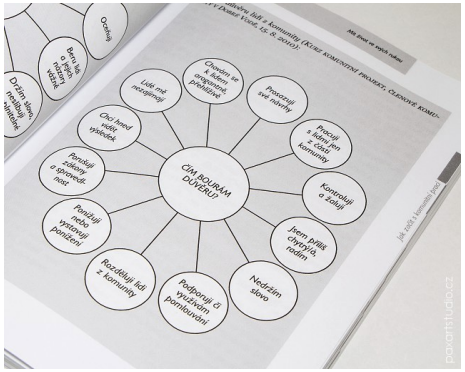
Kombination von Bild und Text
Bücher
Broschüren
Magazine
Visitenkarten
CD Cover
Flyer
...

http://www.scribus.net

Schulbroschüren
Visitenkarten

Maturitätsarbeiten

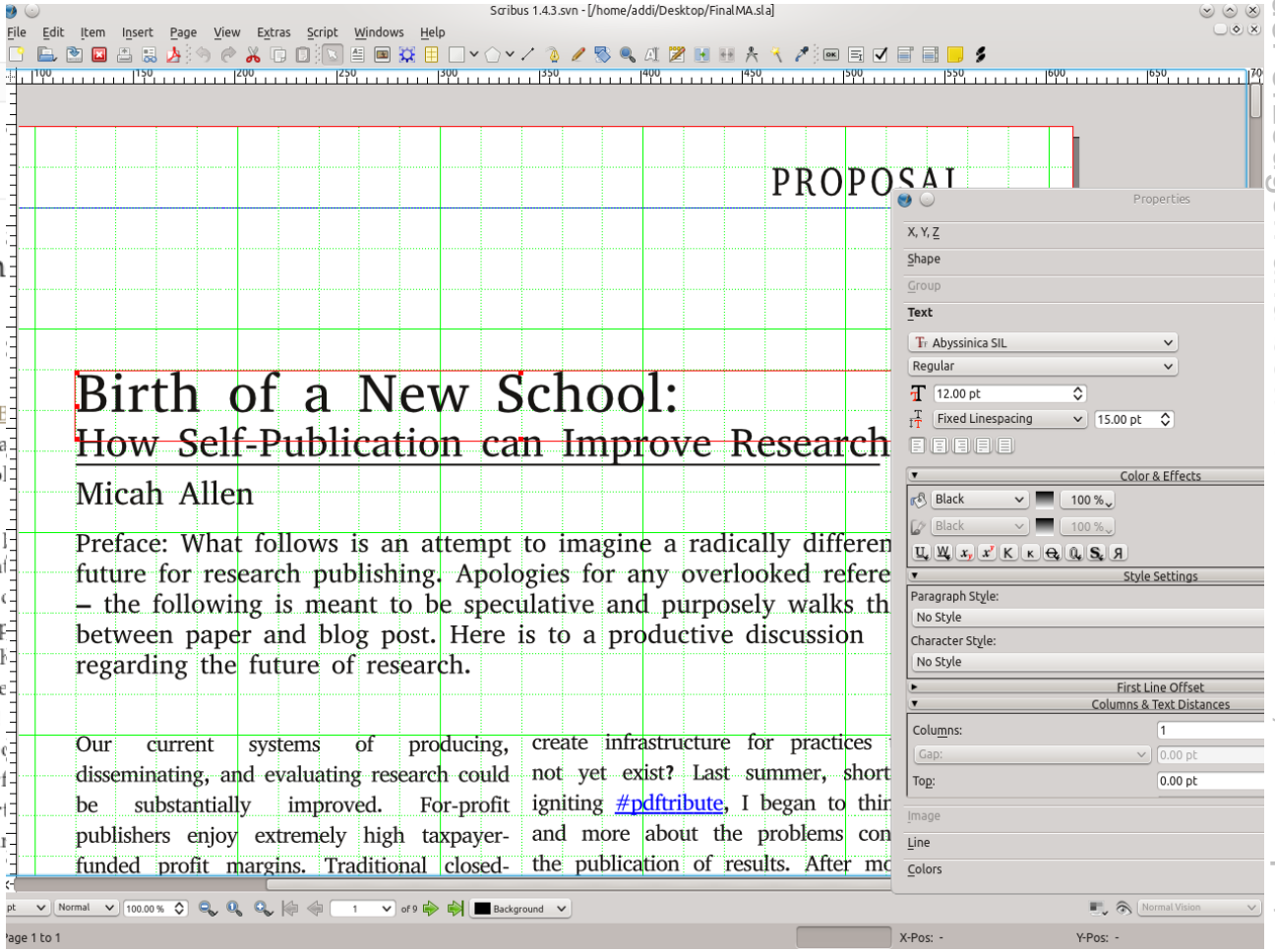




Alle Beispiele aus http://wiki.scribus.net < success stories

Oder auch, z.B. http://www.le-tigre.net/Numero-36-37.html

DTP- Layout - Scribus



MICAH ALLEN – CV NEUROCONSCIENCE?

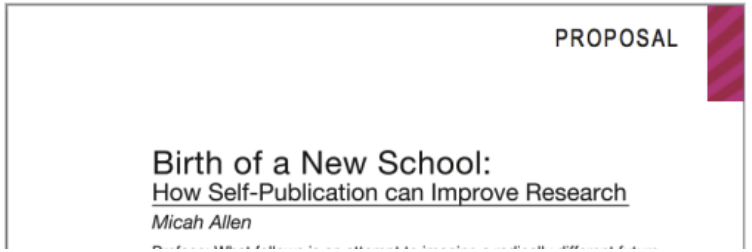
Researching Neuroplasticity, Cognitive Neuroscience, and Cognitive Science

Birth of a New School: PDF version an Scribus Template!

by Neuroconscience

As promised, today we are releasing a copy-edited PDF of my "E New School" essay, as well as a Scribus template that anyone ca quickly create their own professional quality PDF manuscripts. Apol the lengthy delay, as i've been in the middle of a move to the UK. folks will iterate and optimize these templates for a variety of especially post-publication peer review, commentary, pre-registra more. Special thanks to collaborator Kate Mills, who used Scribus to initial layout. You might notice we deliberately styled the manuscrip the format of one of those Big Sexy Journals (see if you can guess wh I've heard this elaborate process should cost somewhere in the thousands of dollars per article, so I guess I owe Kate a few lunches! though, the entire copy-editing and formatting process only took abo hours total (most of which was just getting used to the Scribus interf than the time you would spend formatting and reformatting your ar traditional publisher. With a little practice Scribus or similar tools ca to quickly turn out a variety of high quality article types.

Here is the article on Figshare, and the direct download link:


PROPOSAL

Birth of a New School:
How Self-Publication can Improve Research
Micah Allen

DTP- Layout - Scribus

Funktionsumfang

Freie Anordnung von Text- und Bildblöcken

viele Einstellungsmöglichkeiten, Hilfsmittel

umfangreiche Typografiefunktionen

Druckvorstufenüberprüfung

Stilvorlagen
Musterseiten

...

Renderrahmen – rendern von Bildern aus externen Anwendungen (Formeln, Noten...)

Scripting Engine (Python)

http://www.scribus.net
erster Release: Juni 2003

Dateiformat

.sla
basiert auf XML
->Umwandlung in andere Formate gut möglich

Import
Diverse **Raster- und Vektorgrafikformate**
Formatierter/unformatierter **Text**

Export
Sehr guter PDF-Export
(für profesionelle Druckausgabe)

Proprietäre Alternativen

InDesign (Adobe)

QuarkXpress

Layout - Scribus

http://www.scribus.net/

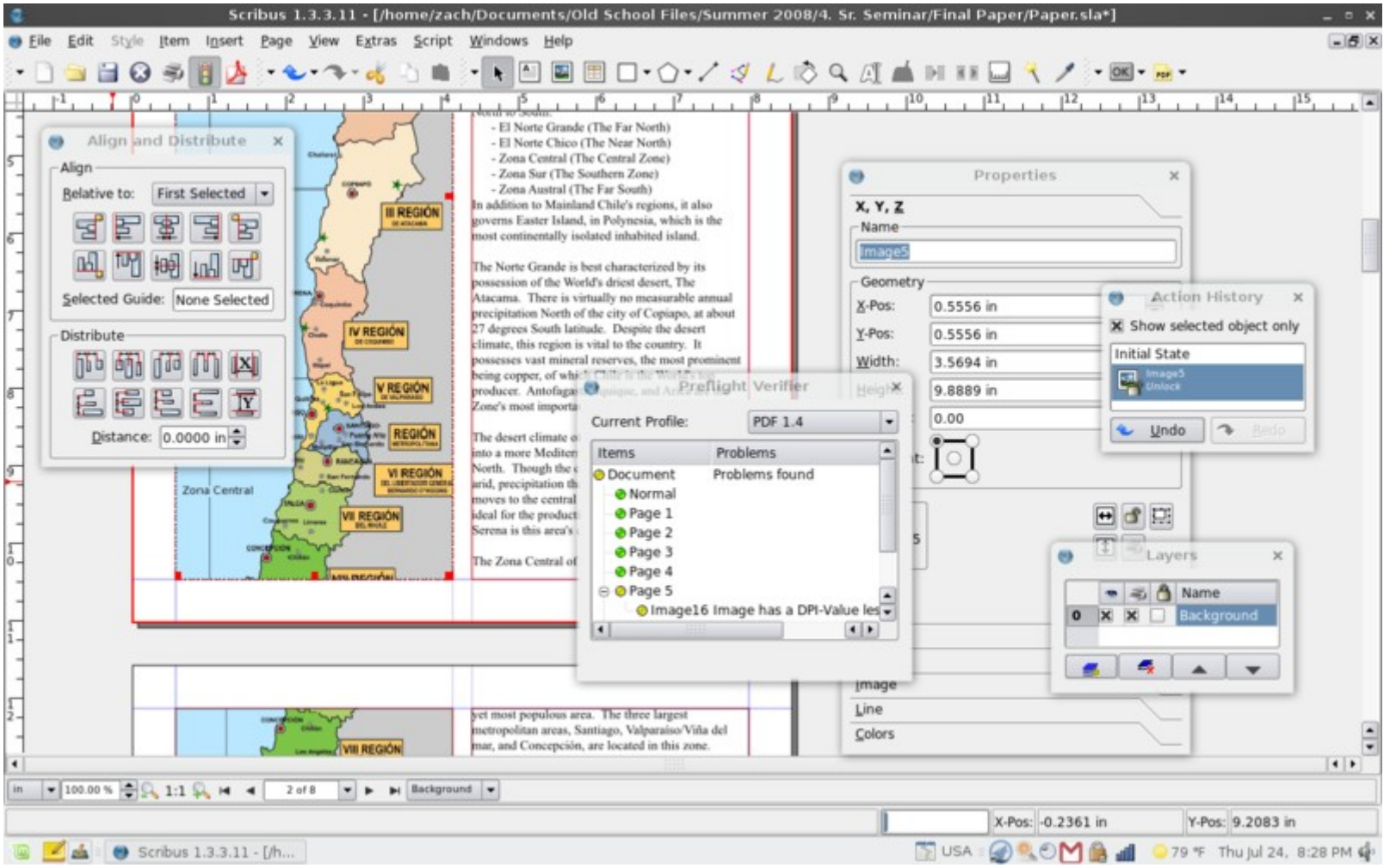


Bild: http://en.wikipedia.org/wiki/Scribus

Vektorgrafik - Inkscape

Vektorgrafik - Inkscape

Anwendungsbereiche

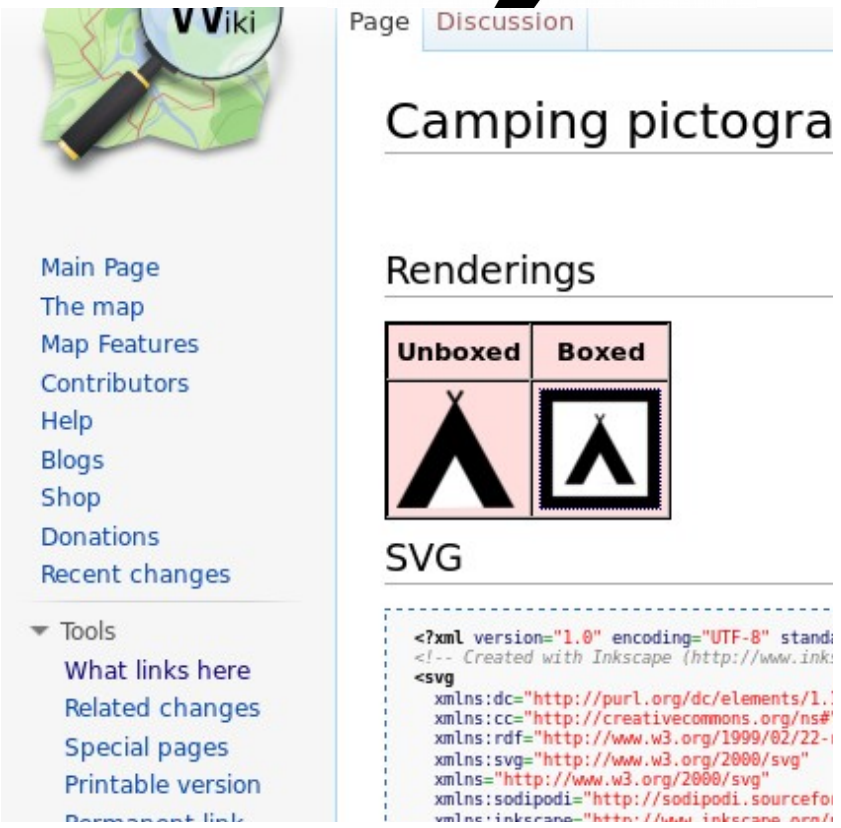
Logos

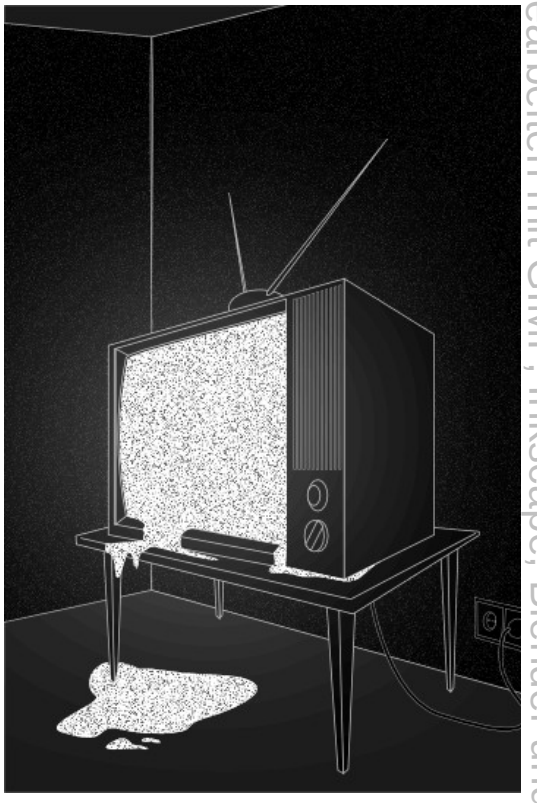
Piktogramme, Icons

Illustrationen, ...

Klar umrissene Formen
Skalierbarkeit ohne Qualitätsverlust

www.inkscape.org





http://greatbooksforchildren.wordpress.com/our-inkscape-gallery/
http://wiki.openstreetmap.org/ http://freeter.deviantart.com/art/tv1-143973813

Vektorgrafik - Inkscape

Funktionsumfang

Pfade/Formen zeichnen und bearbeiten
Diverse Tools zum **Zeichnen** und **Bearbeiten der Bézier-Kurven**

Diverse Hilfsmittel zur **Positionierung** und **Organisation** (Ebenen, Raster,Transformationen...)

Zahlreiche **Pfadoperationen** (Boolsche Operationen, Vereinfachung,...)

Bearbeiten und Verformen von **Text**

Fotos/Zeichen vektorisieren

XML GUI Editor – **direkte Bearbeitung der SVG** Struktur einer Grafik

http://www.scribus.net

2003 als eigenständiges Projekt von Sodipodi abgespaltet (Sodipodi ab 1999)

Proprietäre Alternativen

Adobe Illustrator
Corel Draw

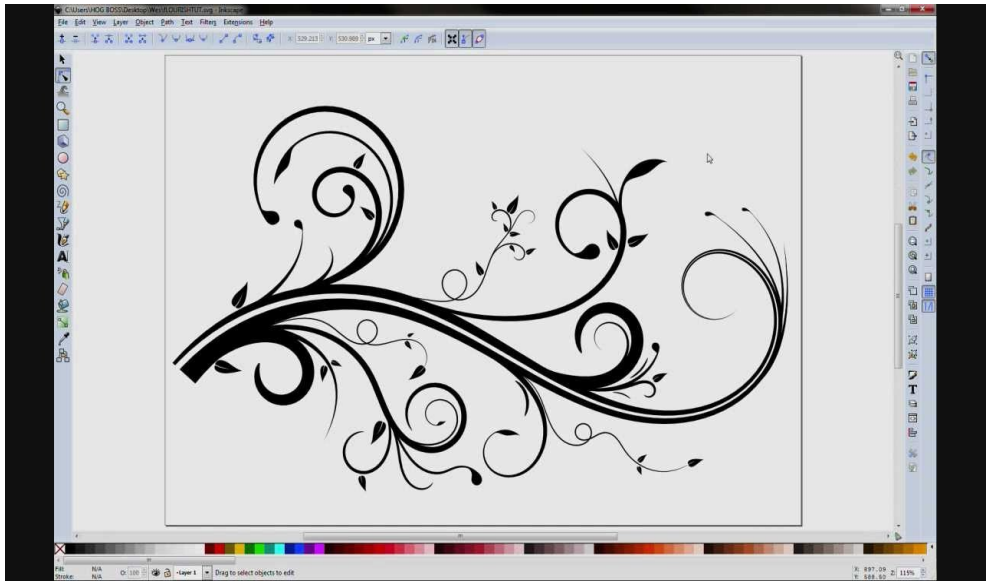
Dateiformate Import/Export

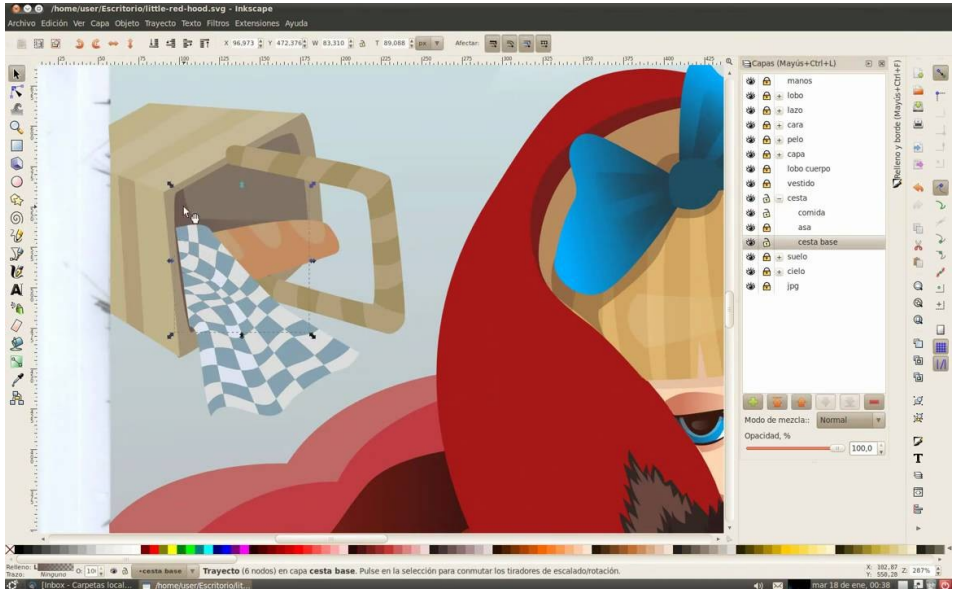
PNG, OpenDocument Drawing, DXF, sk1, PDF, EPS, PostScript...

SVG
Sehr gute Konformität zum SVG-Standard
W3C-konformes XML, DVG und CSS2

Vektorgrafik - Inkscape

www.inkscape.org

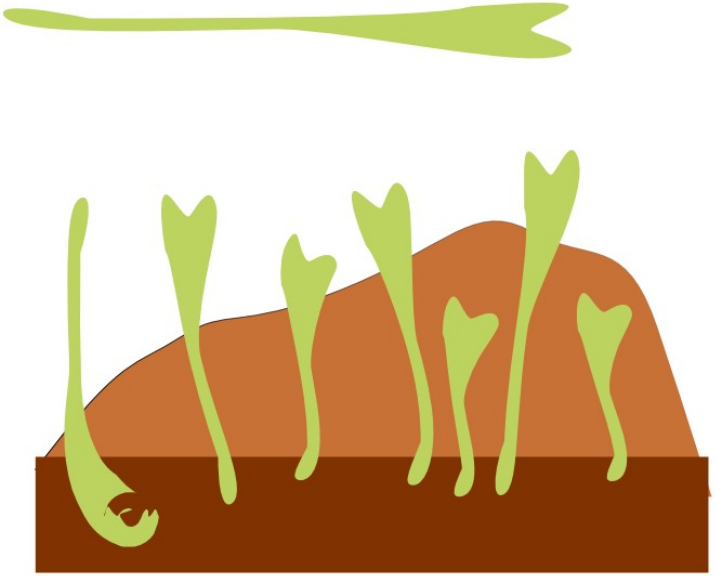


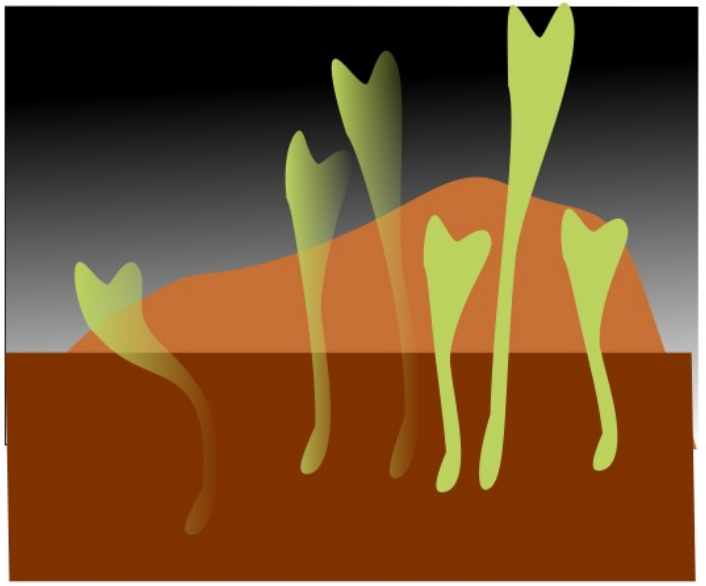


Bilder aus http://www.techdrivein.com/2011/08/10-good-inkscape-tutorials-for-vector.html

Vektorgrafik – Inkscape- Demo

www.inkscape.org





Vektorgrafik -weitere Tools

Layout, DTP

Inkscape

Schriftgestaltung

Illustrationen

Vektorgrafik

Diagramme

2D **Animation**

FontForge

DIA

Animierte Vektorgrafik

Synfig

Vektorgrafik- weitere Tools: 2D-Animation - Synfig

http://www.synfig.org

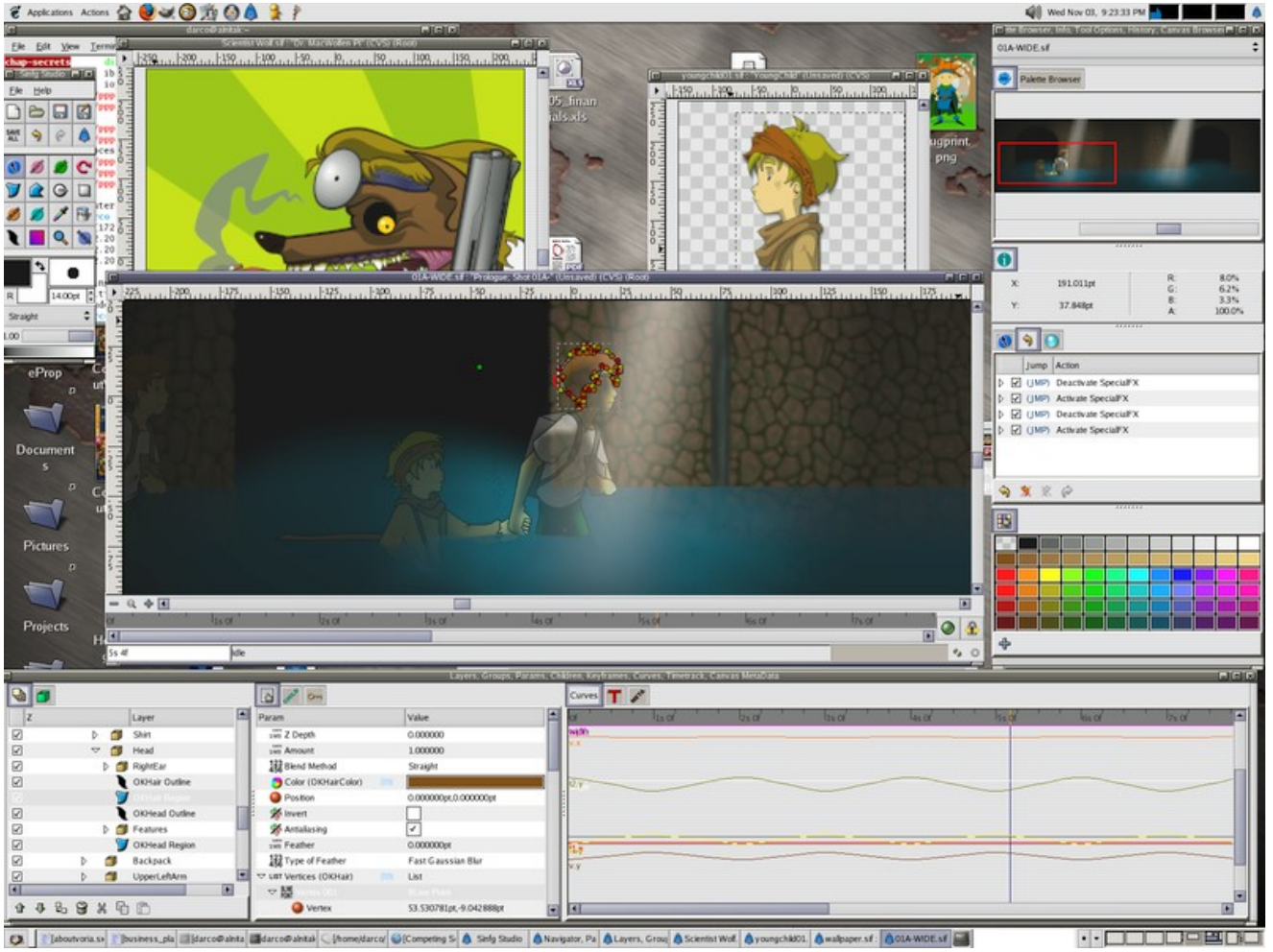


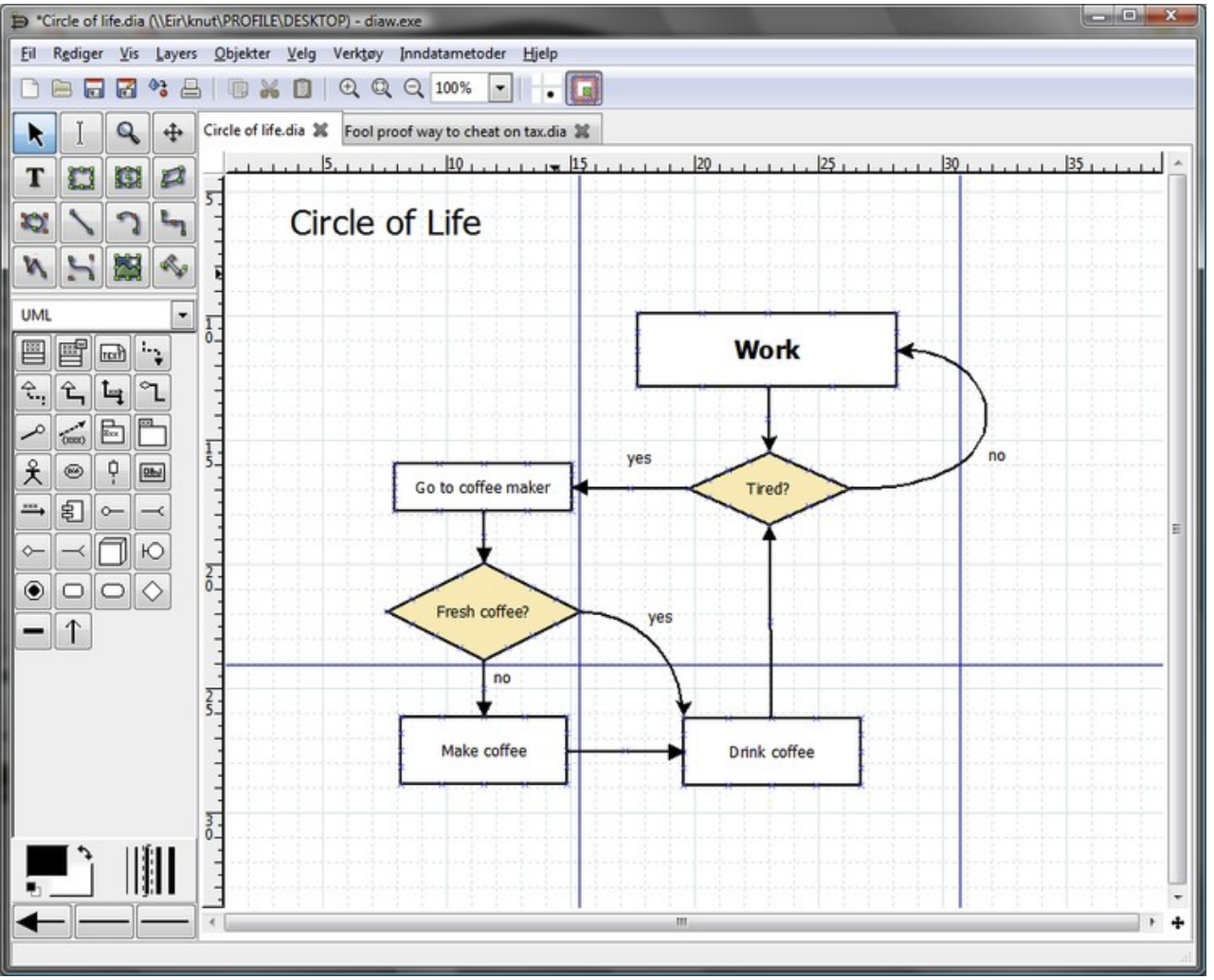
Bild: http://sourceforge.net/projects/synfig/

Proprietäre Alternativen

Adobe Flash

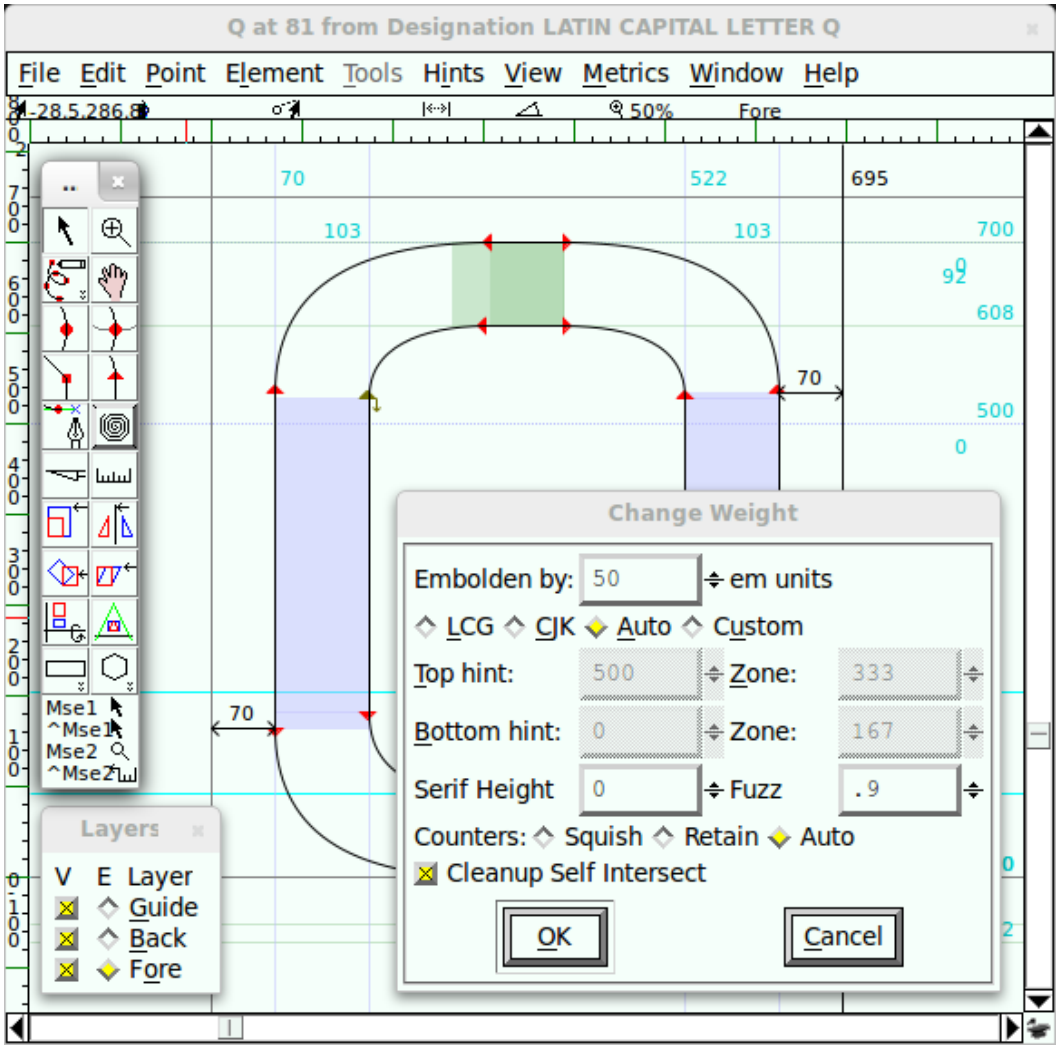
Vektorgrafik- weitere Tools
Diagramme Zeichnen - Dia

https://wiki.gnome.org/Apps/Dia



Vektorgrafik- weitere Tools
Schriftgestaltung - FontForge

http://fontforge.org



Rastergrafik- GIMP

GNU Image Manipulation Programm

www.gimp.org

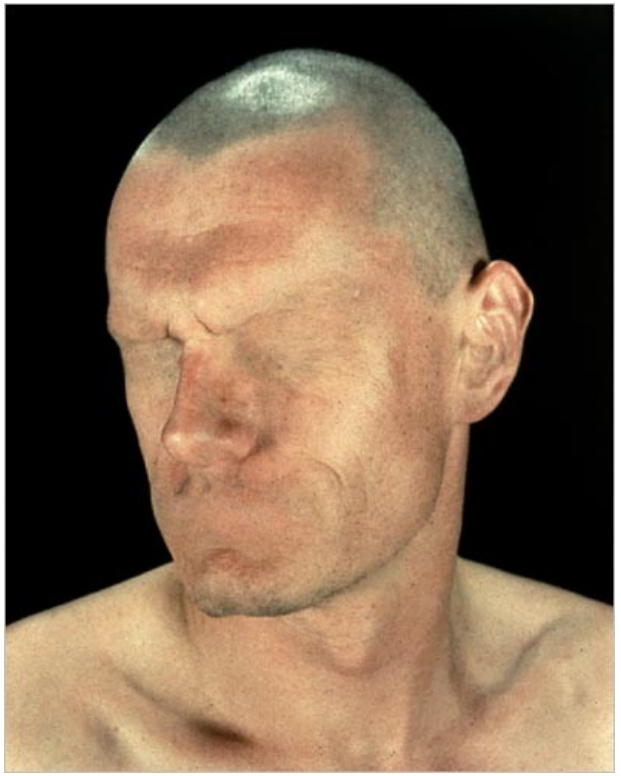
Rastergrafik- GIMP

GNU Image Manipulation Programm
www.gimp.org

Anwendungsbereiche

Digitale Fotografie, Collagen, Manipulationen, Illustrationen (digitale Malerei)

Komplexe Bilder mit unregelmässigen Unterschieden in Tonwert und Farbe, wie z.B. **Fotografien** oder **malerische Arbeiten**



Arbeit vom Künstlerpaar Aziz+Cucher, DYSTOPIA, 1994-95

Manipulierte Fotografie (Blick) zum Attentat in Luxor (1997) – Wasserlache auf Originalfoto

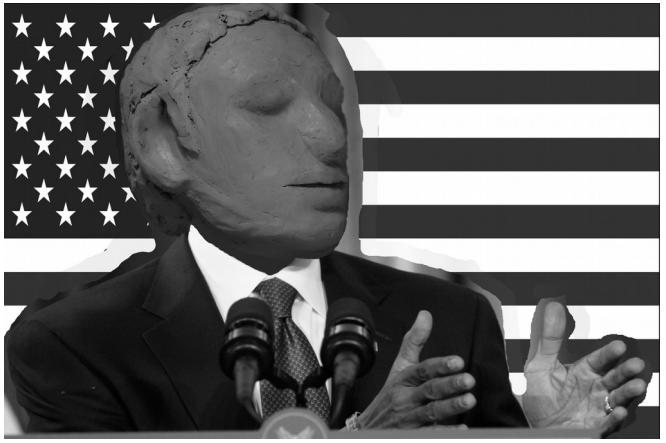
Rastergrafik- GIMP

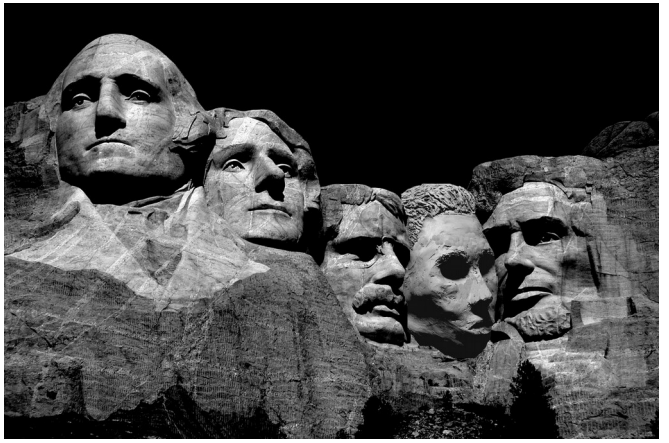
GNU Image Manipulation Programm
www.gimp.org

Schüler/innen-Arbeiten
Virtuelle Begegnungen

Rastergrafik- GIMP

GNU Image Manipulation Programm
www.gimp.org





Schüler/innen-Arbeiten, Virtuelle Begegnungen

Rastergrafik- GIMP 

www.gimp.org

GNU Image Manipulation Programm

Semesterprojekt von Spencer Kimball and Peter Mattis University of California, Berkeley

erster öffentlicher Release (GIMP 0.54) in 1996

Digitale Fotografien bearbeiten

Optimieren

- Bildausschnitt
- Tonwertverteilung
- Helligkeit/Kontrast
- Farbigkeit
- Perspektive
- Schärfe

Manipulieren

- Retouchieren
- Montage
- Verfremdung

Digitale Bilder erzeugen /malen

Rastergrafik- GIMP

GNU Image Manipulation Programm
www.gimp.org

Features

Ebenen
Kanäle

Auswahlwerkzeuge und
-funktionen

Manipulation von Farbwerten
Filter

Transformationen
Malwerkzeuge

Arbeitsverlauf

Animationen

...

Hardwaresupport für viele
Inputgeräte

Dateiformat

.xcf

Import/Export

bmp, gif, jpeg, mng, pcx, pdf, png, ps, psd, svg, tiff, tga, xpm (z.T. mit Hilfe von Plugins)

SVG Pfade importieren/exportieren

Proprietäre Alternativen

Adobe Photoshop
Corel Paint
...

Erweiterbarkeit durch zahlreiche Plugins!

Rastergrafik- GIMP-Demo

GNU Image Manipulation Programm

www.gimp.org

Digitale Fotografie- Hilfsprogramme

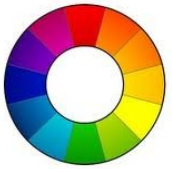
Bildverwaltung

DigiKam

GIMP

Rastergrafik

Digitale Fotografie
Manipulation, Collage



RAW Entwicklung

RawTherapee

UFRaw

HDR

Luminance HDR

DigiKam

http://www.digiKam.org

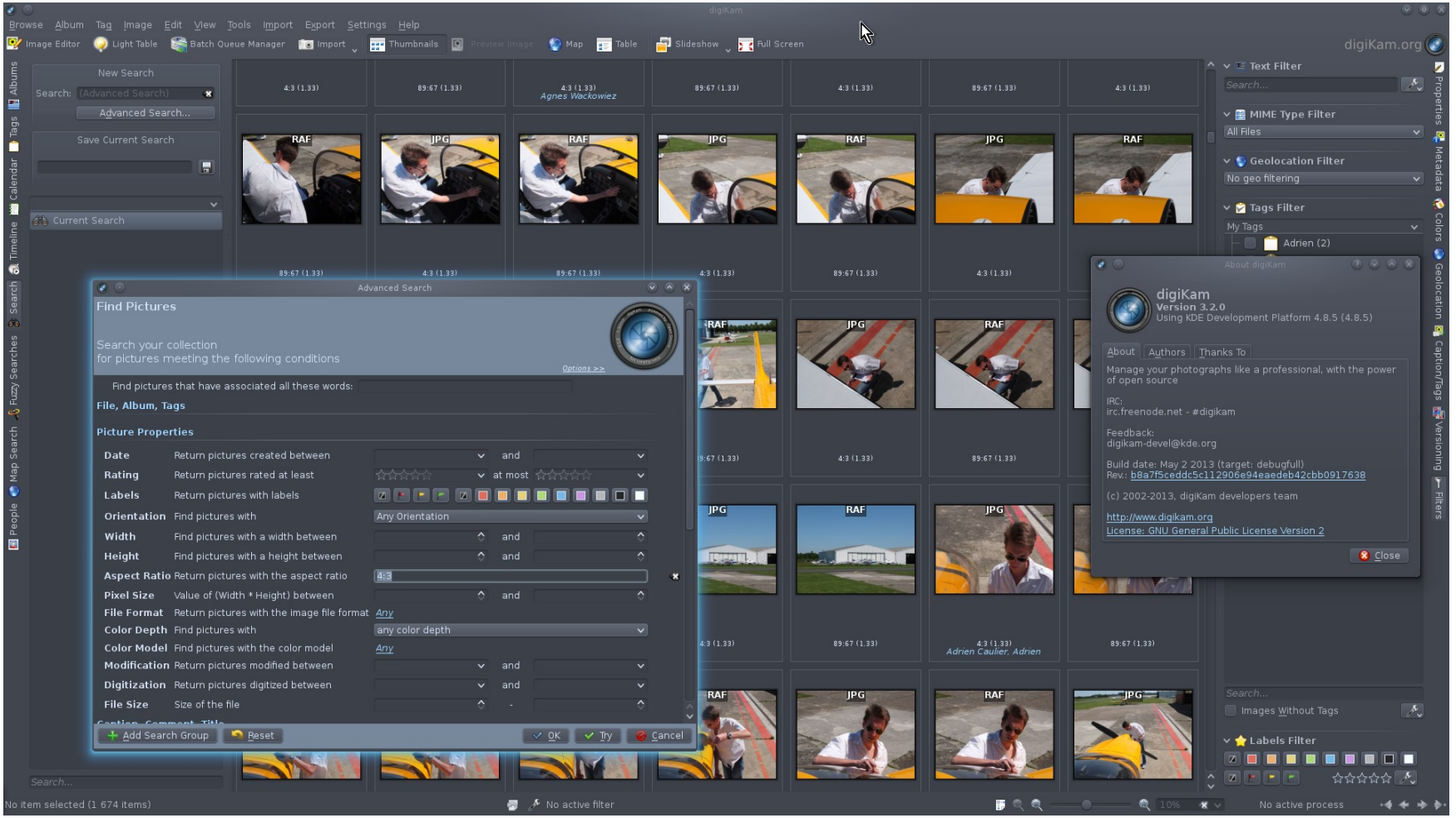


Bild: http://en.wikipedia.org/wiki/DigiKam

Digitale Bilder erzeugen und bearbeiten mit GIMP, Inkscape, Blender und anderen

UFRaw

http://ufraw.sourceforge.net/

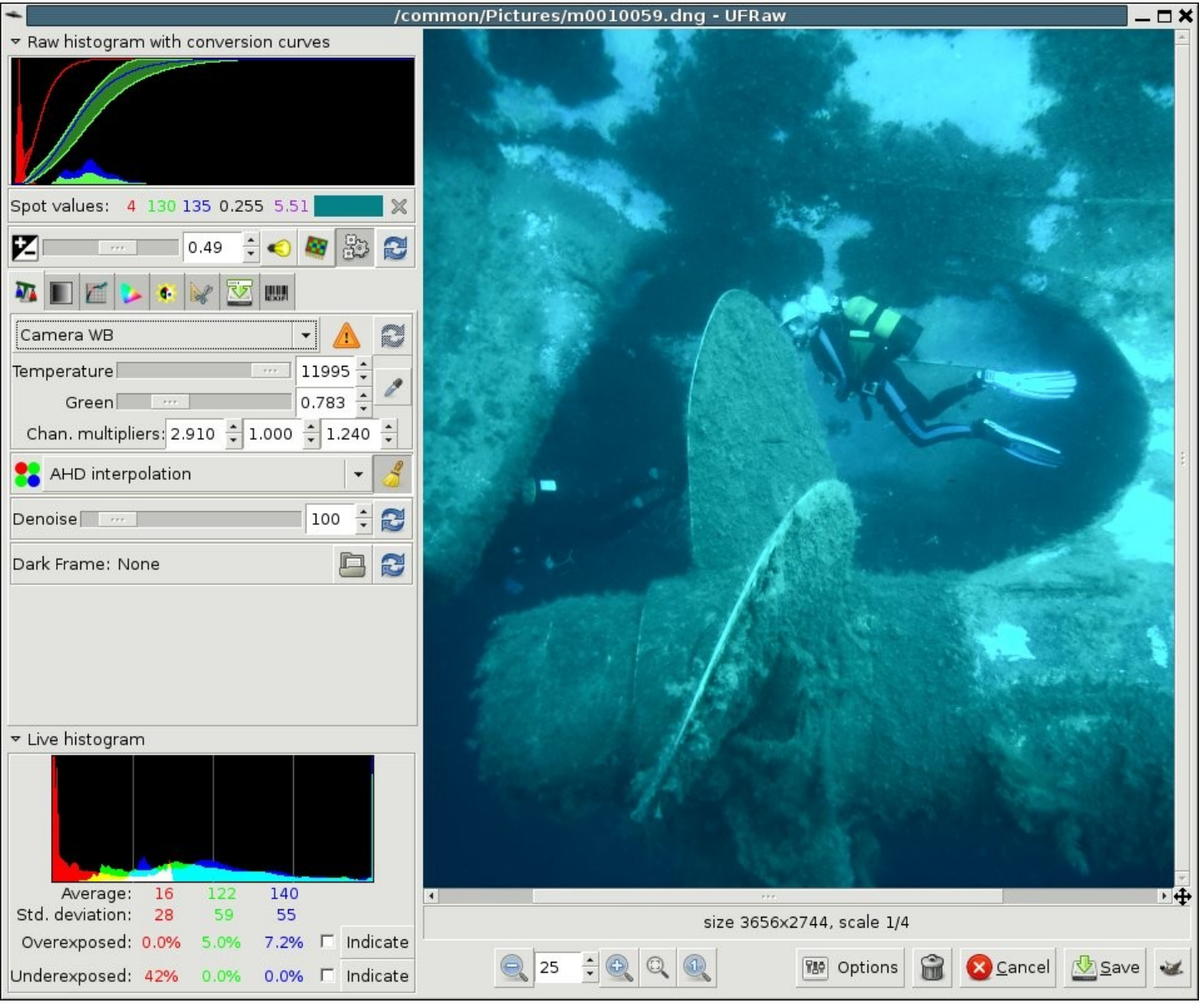


Bild: http://ufraw.sourceforge.net/Guide.html

RawTherapee

http://rawtherapee.com/

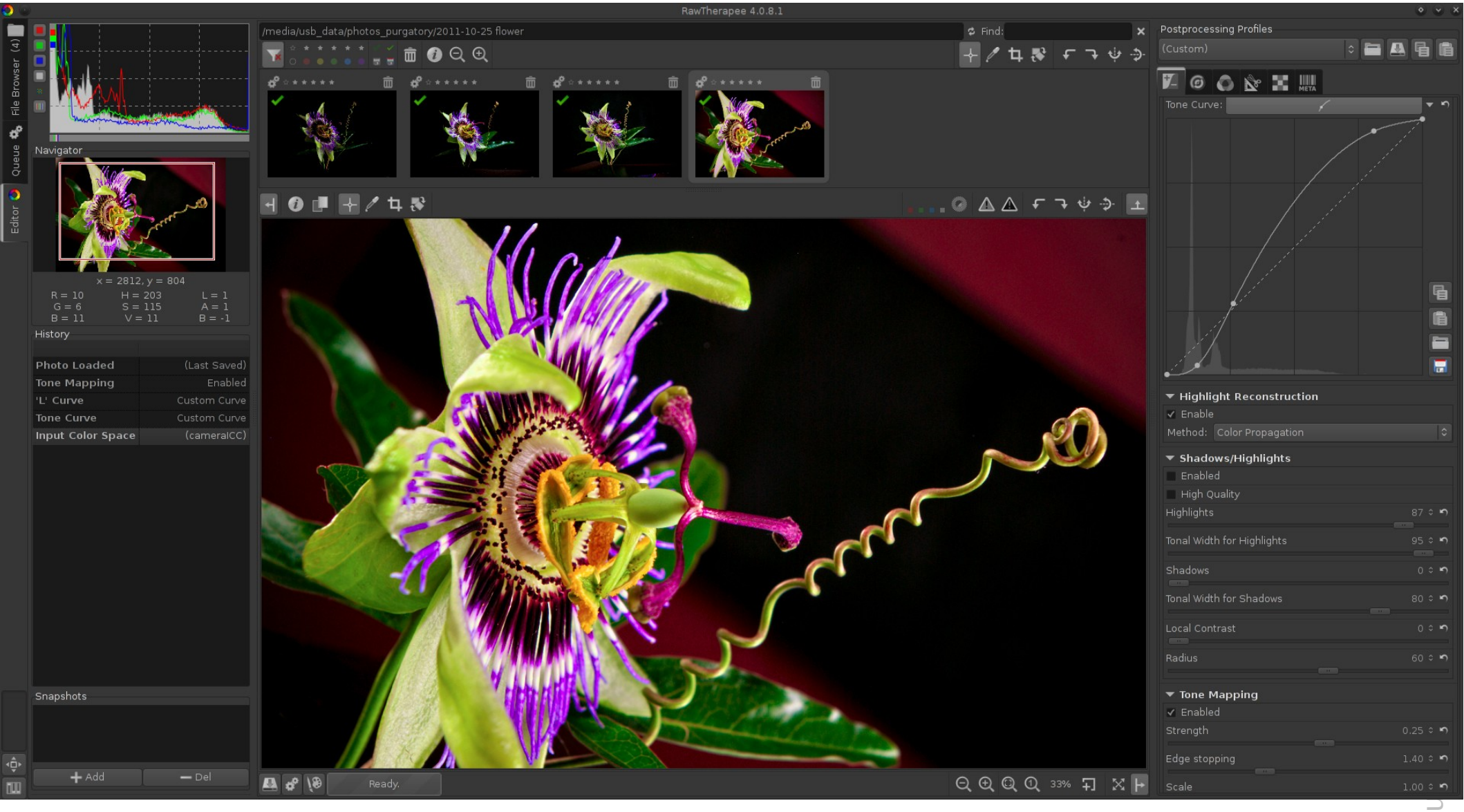


Bild http://en.wikipedia.org/wiki/RawTherapee

Bildnerisches Gestalten- Programme

GIMP

Digitale Malerei

3D Modeling

Rastergrafik

Krita

3D-Grafik

Digitale Fotografie
Manipulation, Collage

Scribus

Blender

CAD

Layout, DTP

Inkscape

Game Design

Schriftgestaltung

Illustrationen

3D Animation

Vektorgrafik

Generative Gestaltung

Processing

Robotik

Diagramme

FontForge

2D **Animation**

Daten-Visualisierung

Arduino

Animierte Rastergrafik

DIA

Videoschnitt

Animierte Vektorgrafik

Blender

Synfig

Kdenlive, Avidemux, OpenSho

Digitale Bilder erzeugen und bearbeiten mit GIMP, Inkscape, Blender und anderen

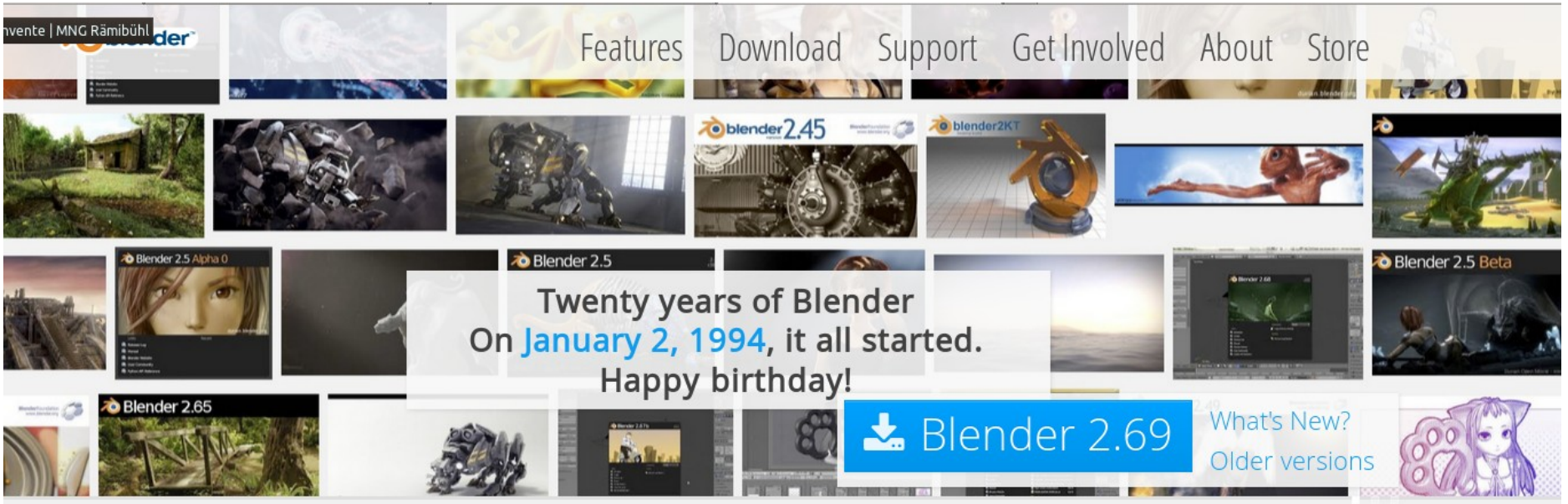
3d-Grafik - Blender

www.blender.org

3d-Grafik - Blender

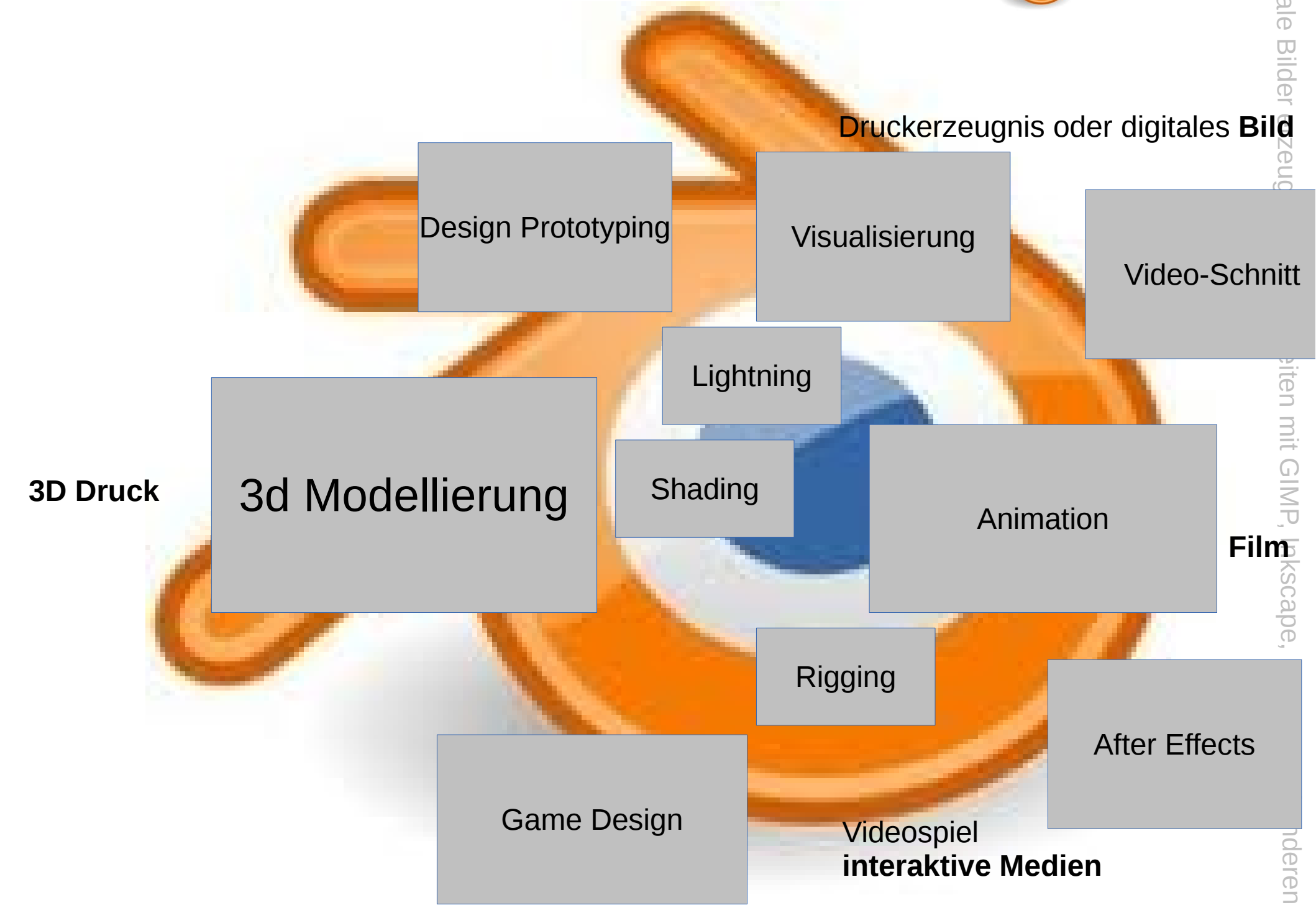
www.blender.org

Erstellen von virtuellen Objekten... Welten



3d-Grafik - Blender

www.blender.org



3d-Grafik - Blender

www.blender.org

Features

Modellieren
Beleuchten
Texturieren
Animieren

Rendern

Video-Editor
Game-Engine

Sehr **flexibles GUI**

Objekte programmieren(Python)

Erweiterbarkeit durch verfügbare und eigene Skripte

1995 Animationstool der Firma NeoGeo

1998 **Ton Roosendaal** NaN: Weiterentwicklung und Vertrieb von Blender

2002 nach Insolvenz durch Spenden freigekauft unter GPL gestellt kontinuierliche Weiterentwicklung

Dateiformat

.blend

Import/Export

Sehr grosse Kompatibilität!
Sehr viele Bild- und Filmformate

3DS, DAE, FBX, DXF, OBJ, x, LWO, BVH, SVG, ...STL, VRML, VRML97, X3D...
...

Proprietäre Alternati

Google Sketchup
Cinema 4D

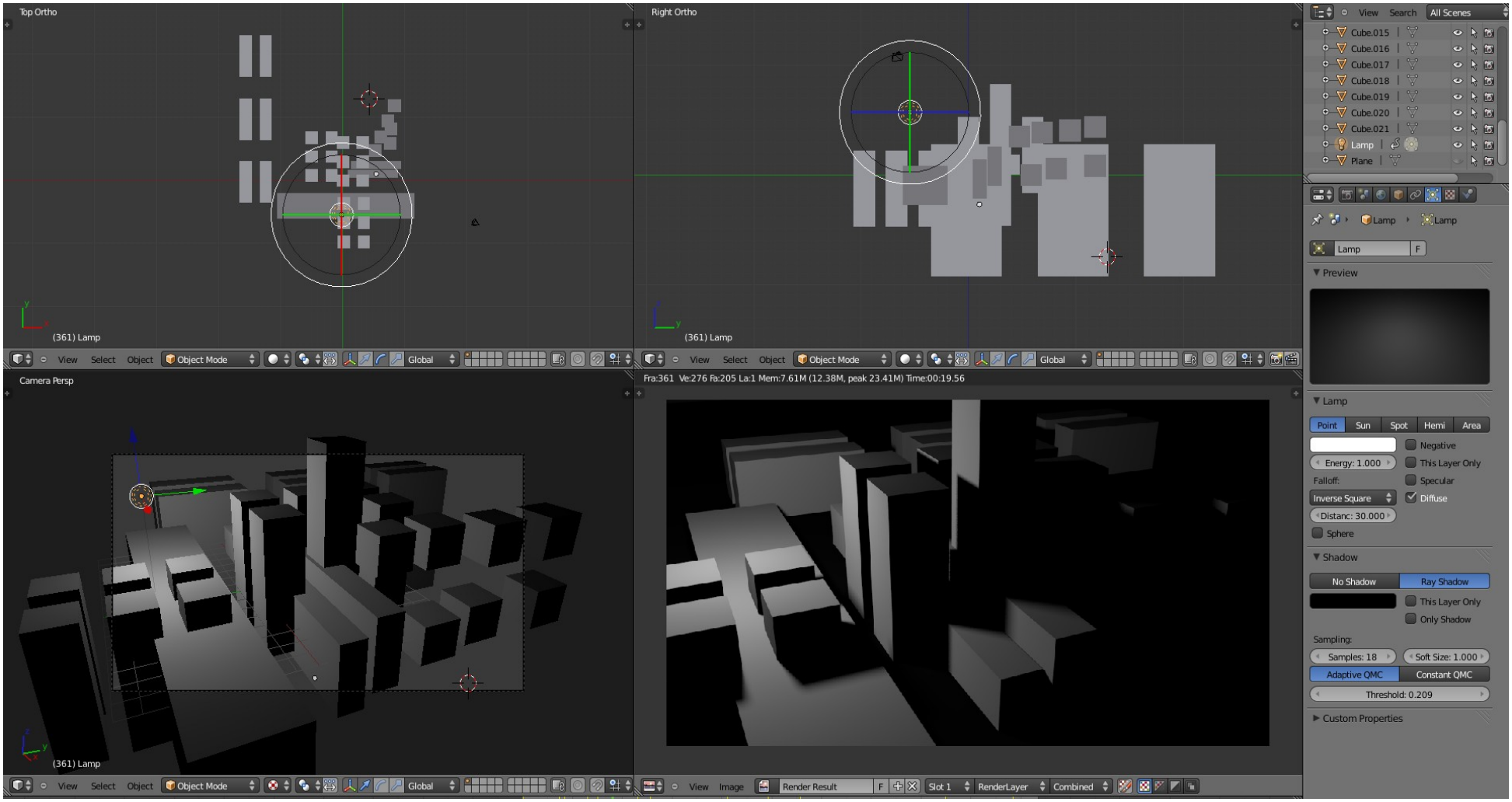
Maya 3D

3d-Grafik - Blender

- Data System and Files
- Interaction in 3D
- Modeling
- Modifiers and Deformation
- Lighting
- Materials
- Textures
- World and Ambient Effects
- Rigging
- Constraints
- Animation
- Physical Simulation
- Motion Tracking
- Rendering with Blender Internal
- Rendering with Cycles
- Non Photorealistic Rendering: Freestyle
- Compositing with nodes
- Editing Sequences
- Extending Blender
- Game Engine

3d-Grafik- Blender- GUI

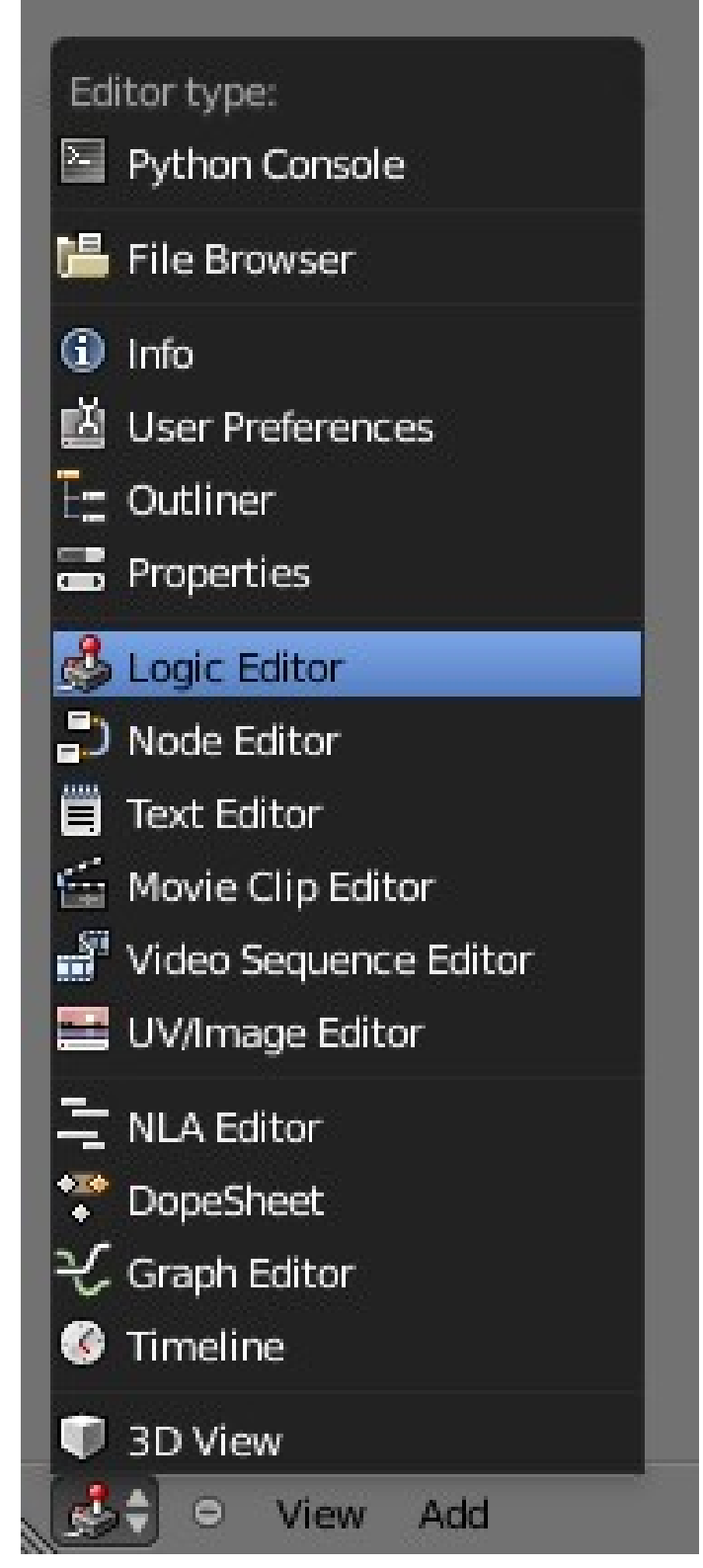
www.blender.org

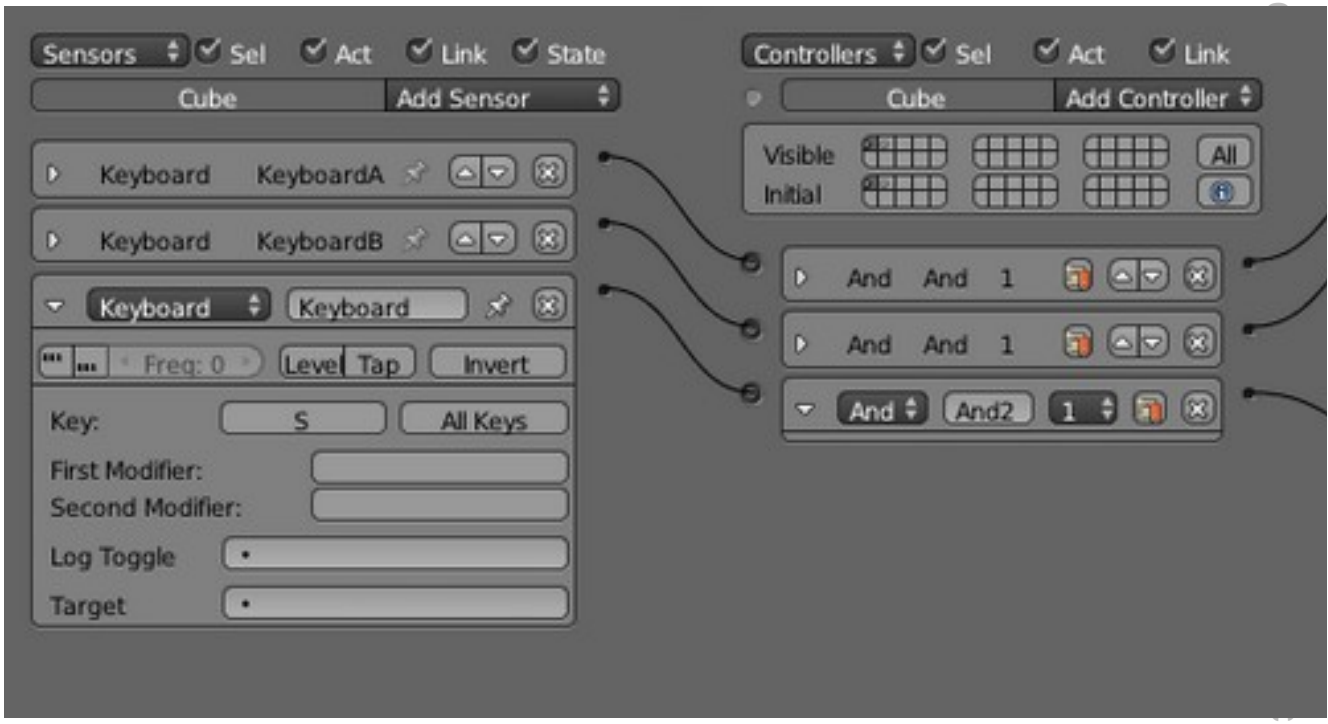


3d-Grafik- Blender- GUI

www.blender.org

Fenster-Typen / Editoren

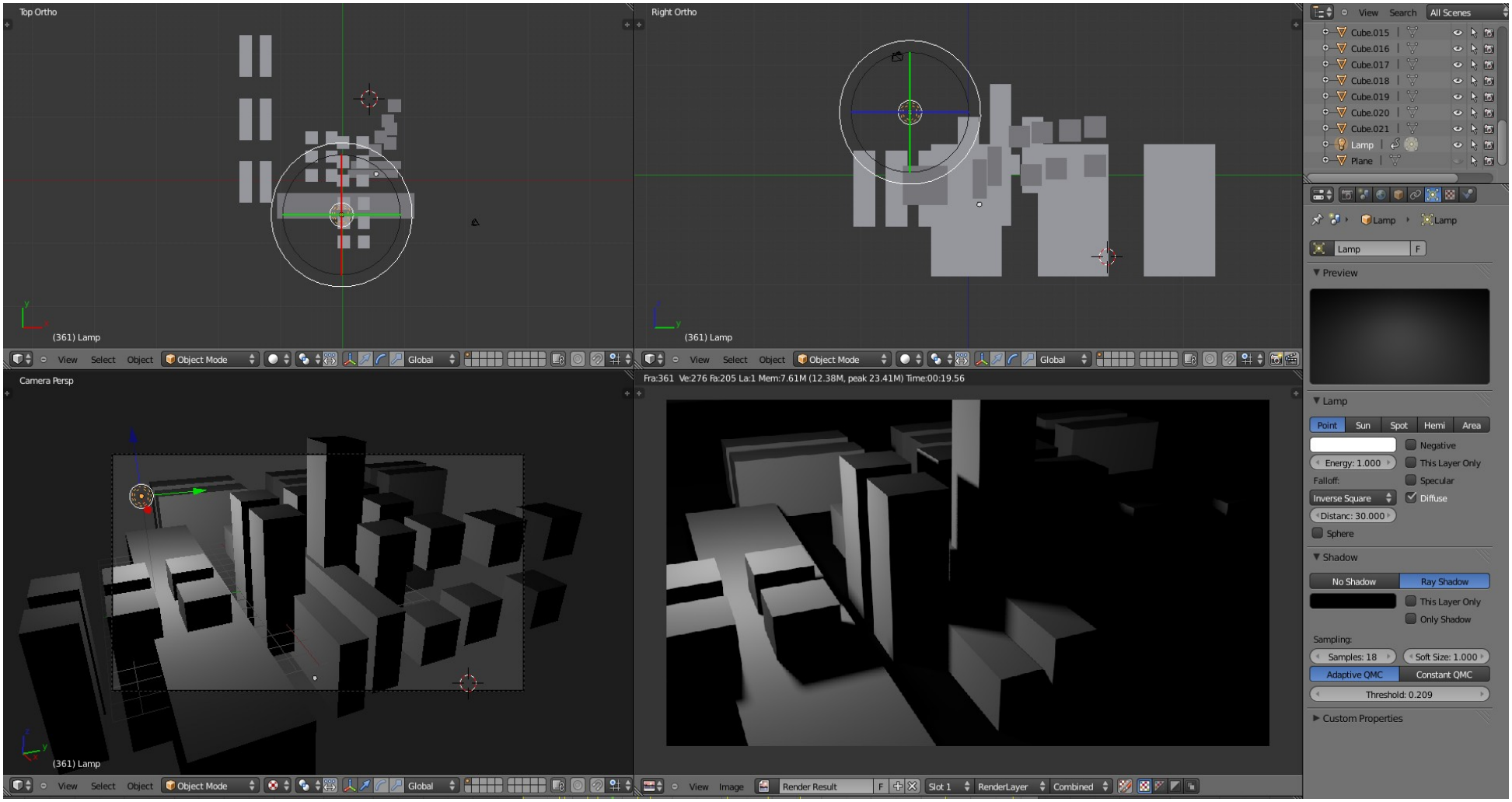




z.B. Game Logic Editor

3d-Grafik- Blender- GUI

www.blender.org

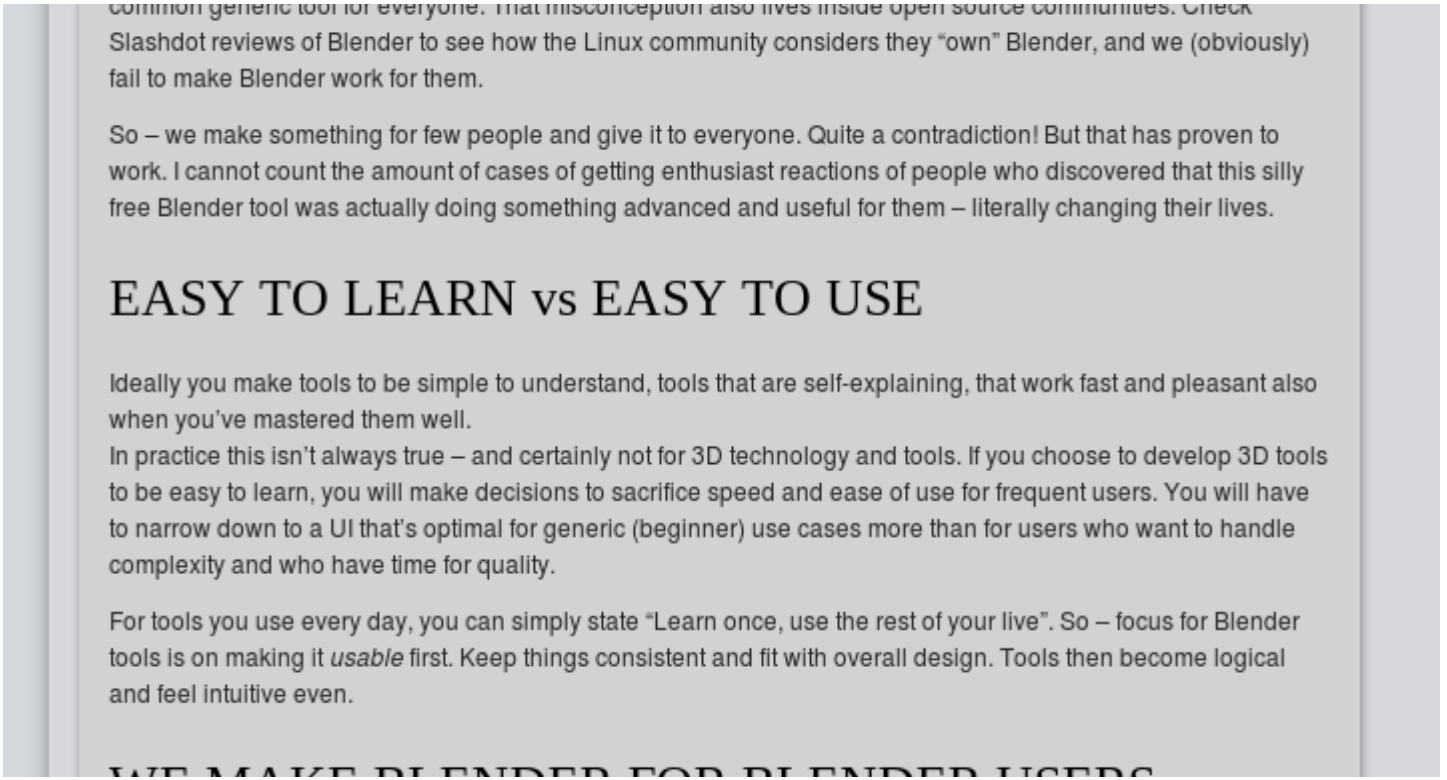


3d-Grafik- Blender- GUI

www.blender.org

Unkonventionelle/ innovative Lösungen -

Flexibel
Konsistent



common generic tool for everyone. That misconception also lives inside open source communities. Check Slashdot reviews of Blender to see how the Linux community considers they "own" Blender, and we (obviously) fail to make Blender work for them.

So – we make something for few people and give it to everyone. Quite a contradiction! But that has proven to work. I cannot count the amount of cases of getting enthusiast reactions of people who discovered that this silly free Blender tool was actually doing something advanced and useful for them – literally changing their lives.

EASY TO LEARN vs EASY TO USE

Ideally you make tools to be simple to understand, tools that are self-explaining, that work fast and pleasant also when you've mastered them well.
In practice this isn't always true – and certainly not for 3D technology and tools. If you choose to develop 3D tools to be easy to learn, you will make decisions to sacrifice speed and ease of use for frequent users. You will have to narrow down to a UI that's optimal for generic (beginner) use cases more than for users who want to handle complexity and who have time for quality.

For tools you use every day, you can simply state "Learn once, use the rest of your live". So – focus for Blender tools is on making it *usable* first. Keep things consistent and fit with overall design. Tools then become logical and feel intuitive even.

WE MAKE BLENDER FOR BLENDER USERS

Aus dem Developer-Blog, (Re)Defining Blender, Ton Roosendaal
http://code.blender.org/index.php/2013/10/redefining-blender/

3d-Grafik – Blender - Unterricht

www.blender.org

Schüler/in definiert

Position und Art der **Lichtquelle**

Blickwinkel auf die Szene/ Kameraposition

Räumliche Eigenschaften der Objekte
Volumen, Proportionen, Form

Oberflächeneigenschaften

Schlüsselbilder (Animation)

Das Programm berechnet

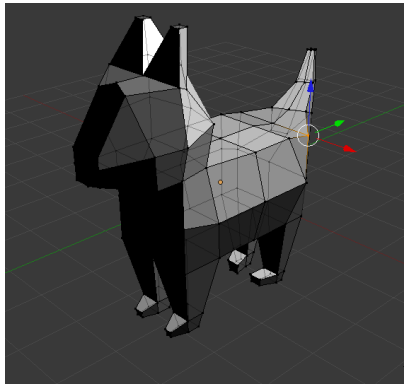
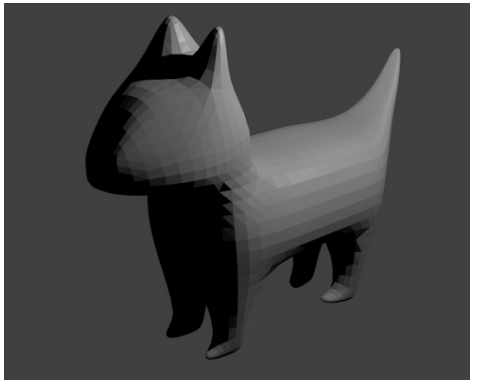
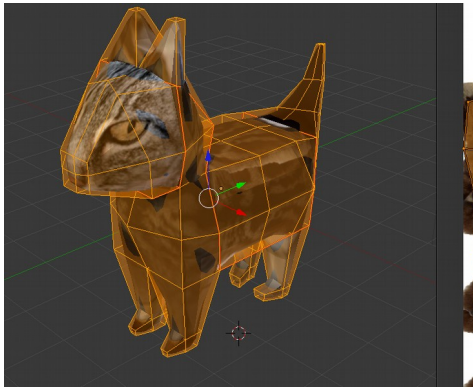
Perspektive

Grössenunterschied, Verzerrungen, Abwinkelung,...

Lichteinfall

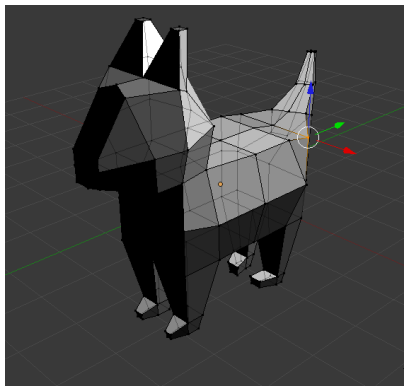
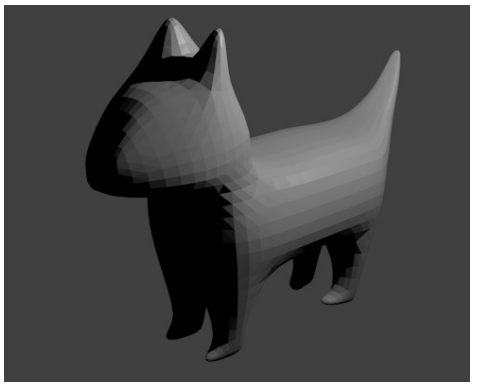
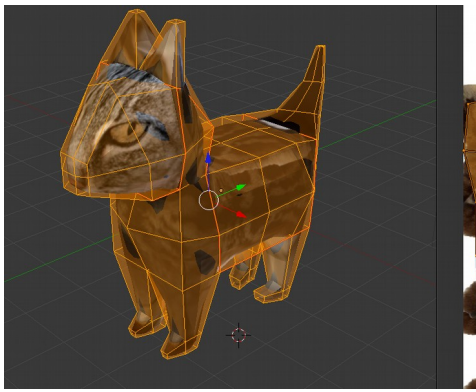
Helligkeit basierend auf der gesetzten Lichtquelle und Kameraposition (Blickwinkel)

Interpoliert Flächen
Berechnet Zwischenbilder (Animation)


3d-Grafik – Blender -Demo

www.blender.org


3d-Grafik – Blender - Unterricht

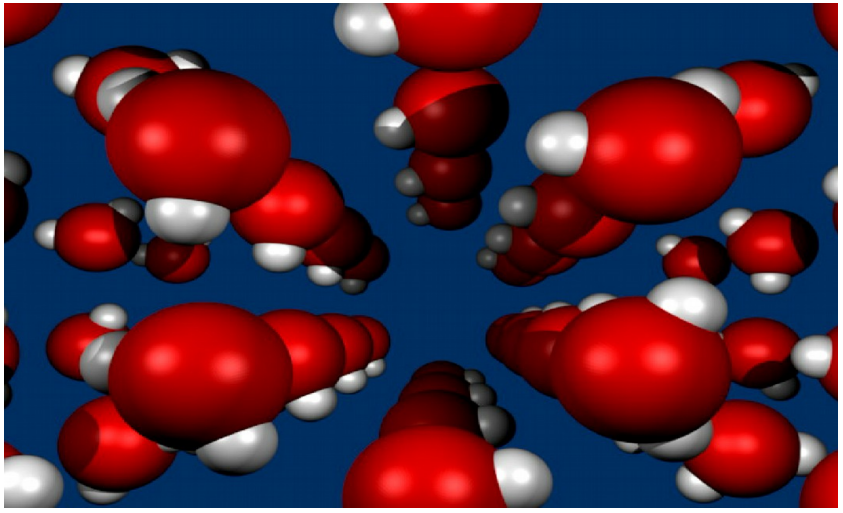
www.blender.org

Schüler/innen arbeiten mit Blender

Bildnerisches Gestalten, Informatik?
Physik? Mathematik? Biologie?...?

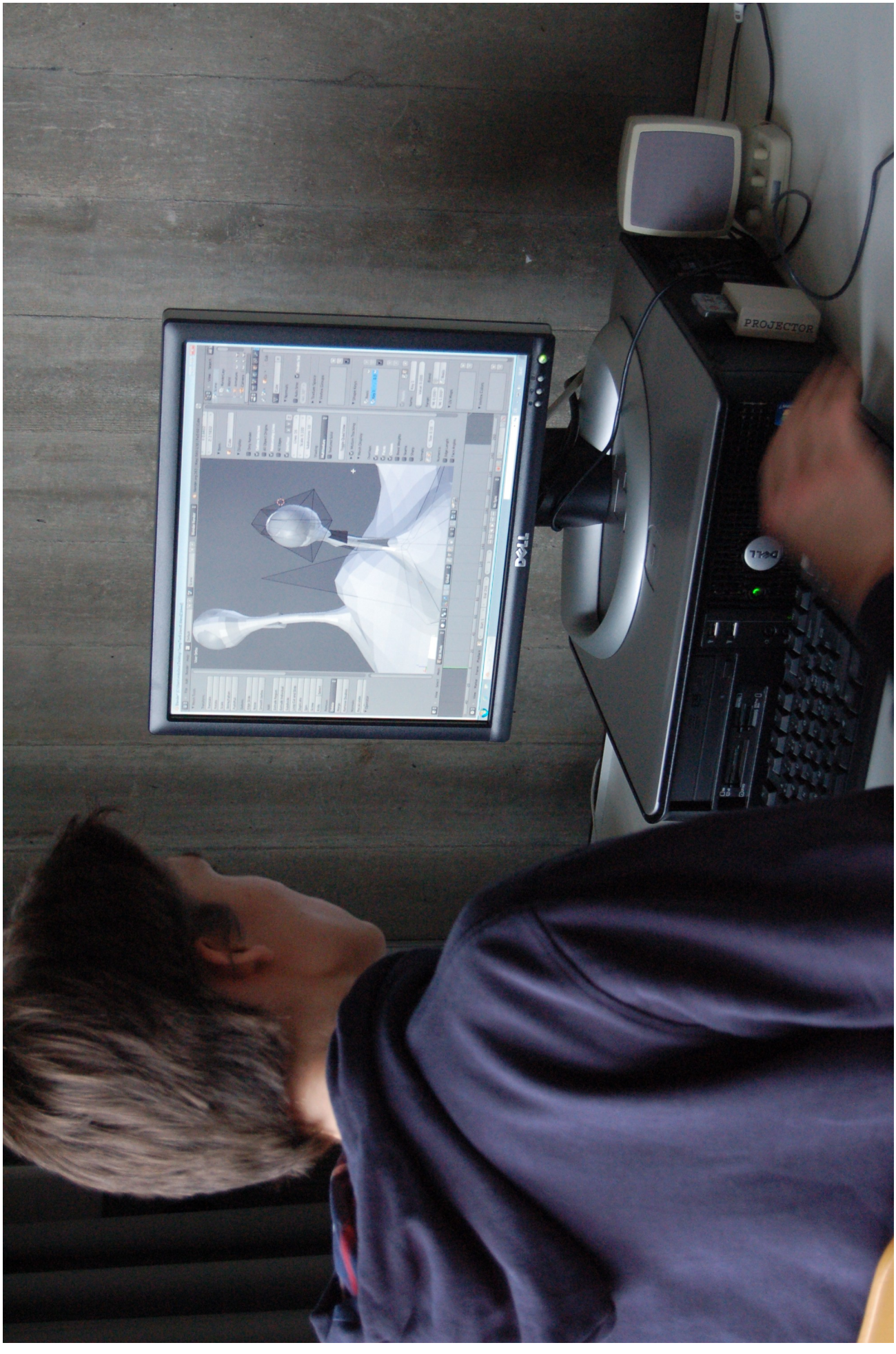
BG-Unterricht, Wahlpflichtkurs 3D Modeling

Modelle
Animationen
Interaktive Modelle/ Spiele



Lehrer/innen bereiten Anschauungsmaterial vor

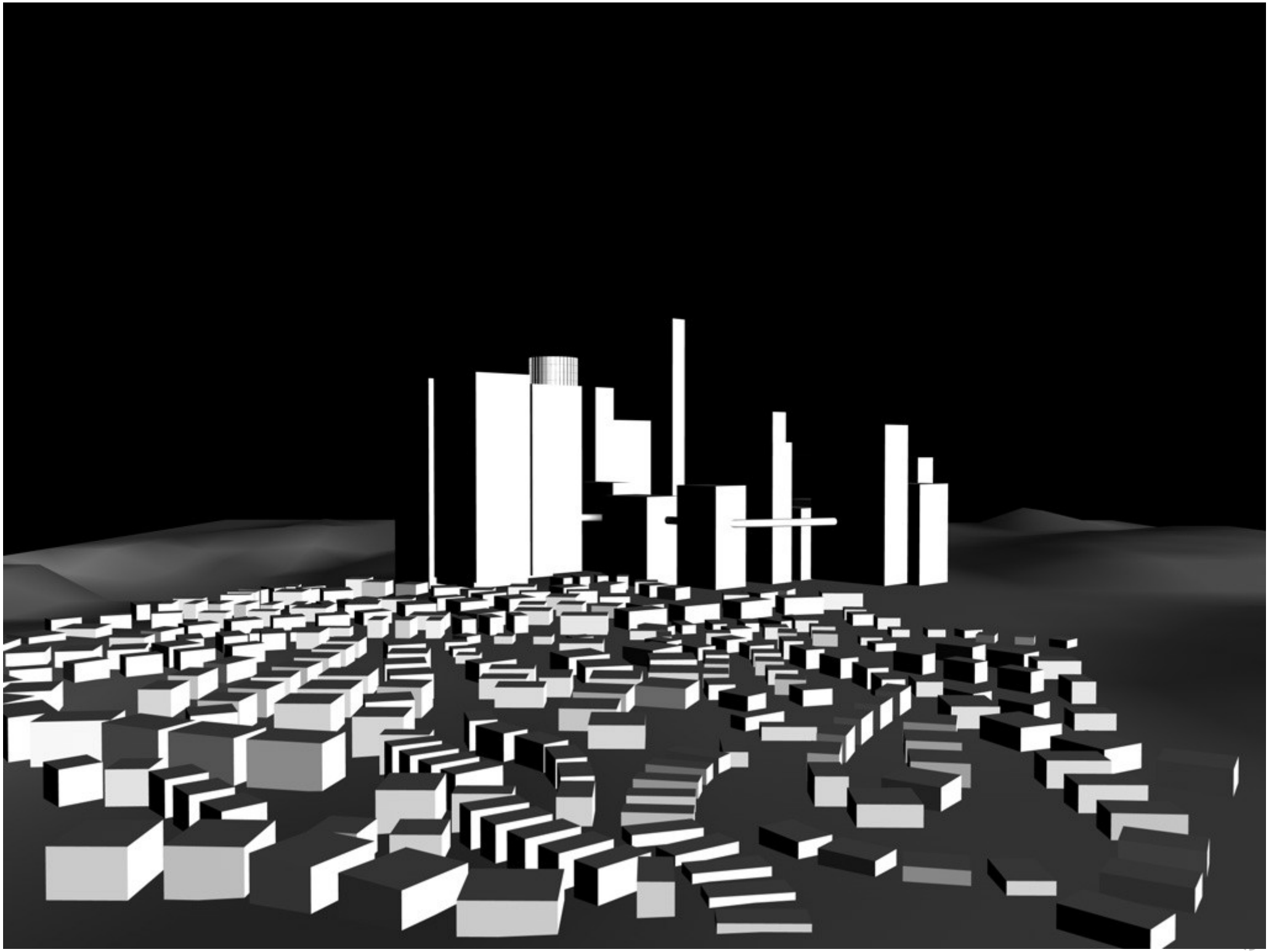
Chemie-Unterricht, animierte Modelle von
Dr.Christian Ammann, MNG Rämibühl

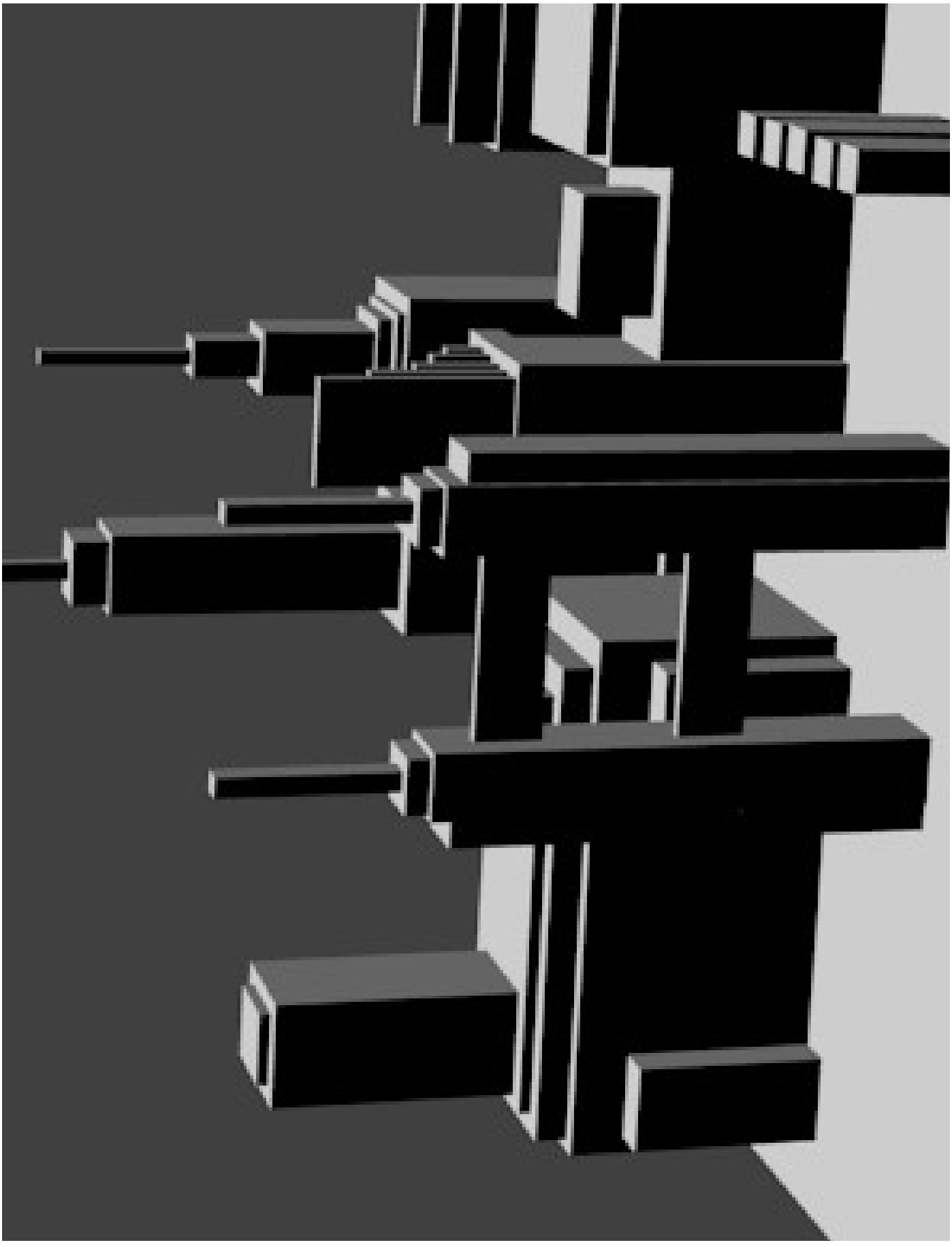

PROJECTOR
DELL

Digitale Bilder erzeugen und bearbeiten mit GIMP, Inkscape, Blender und anderen

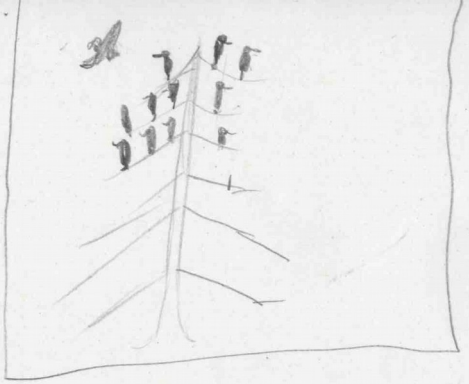

DELL

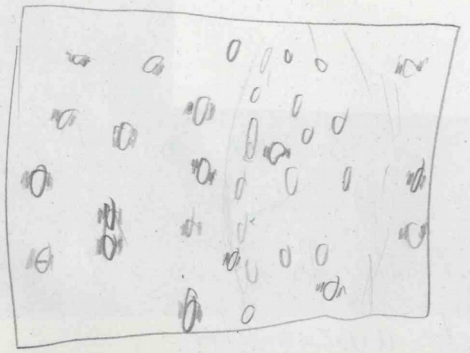
Digitale Bilder erzeugen und bearbeiten mit GIMP, Inkscape, Blender und anderen



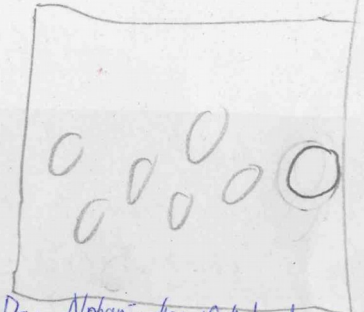


2. Bienenschwarm
3. Wolfsrudel
Büffelherde
Hornissennest
Pinguin Kindergarten

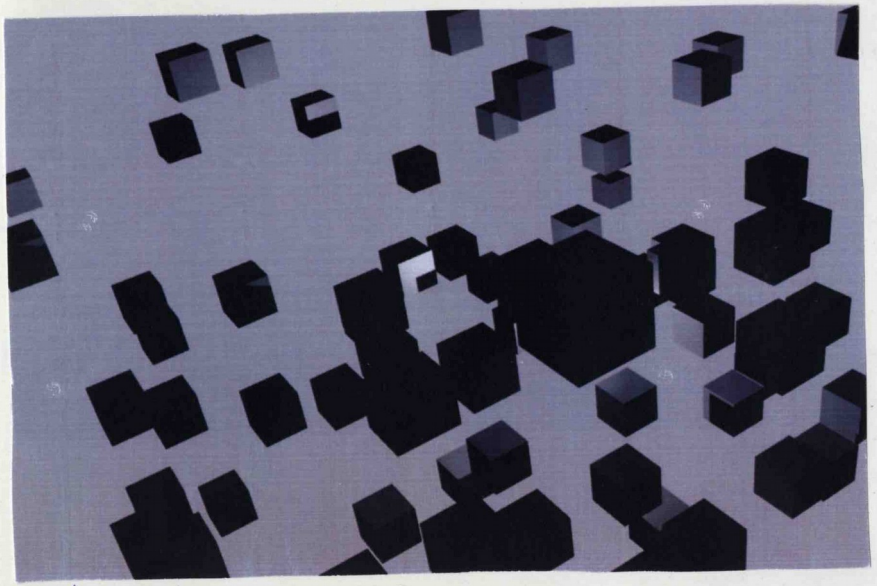




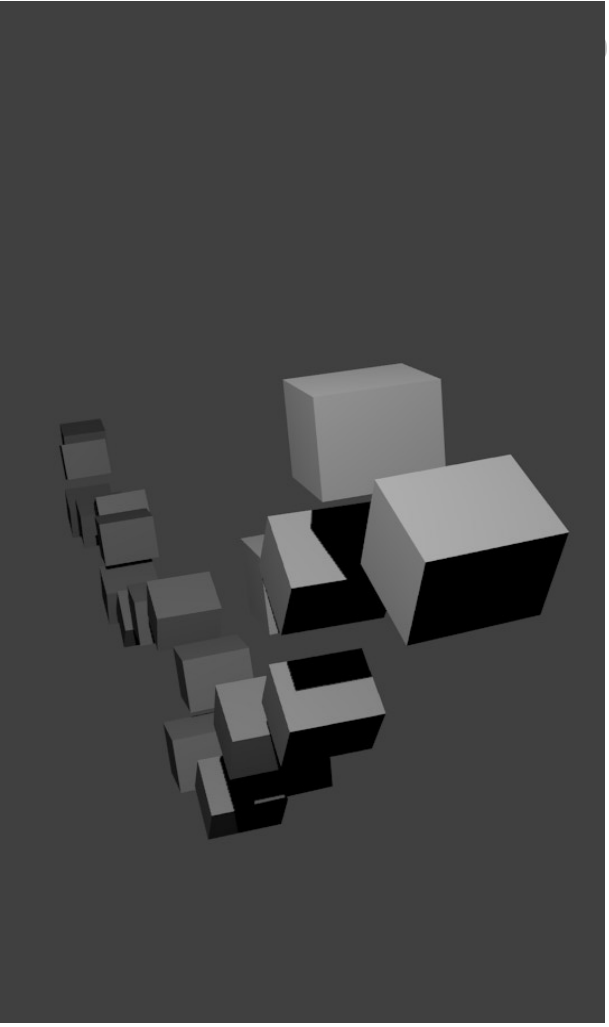
3.

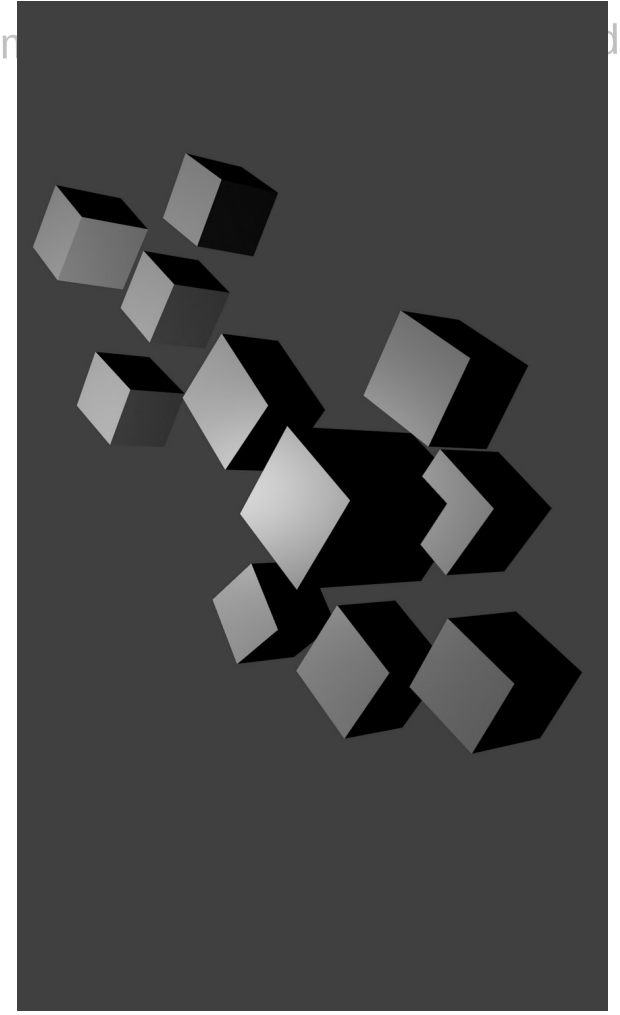


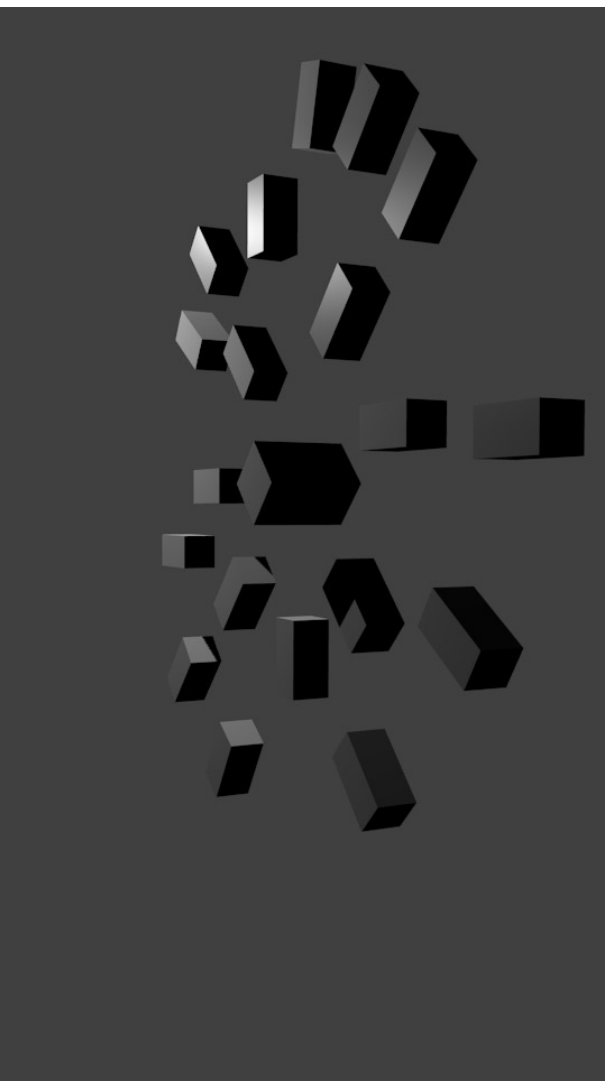
Das Alphamännchen führt das Rudel an

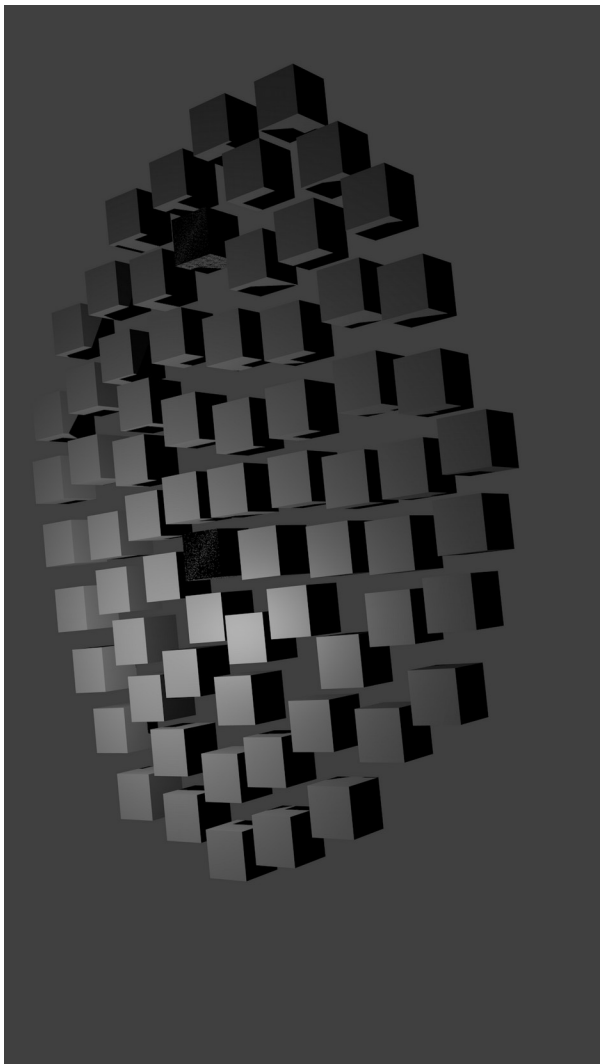


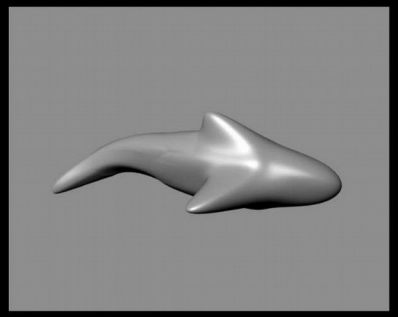
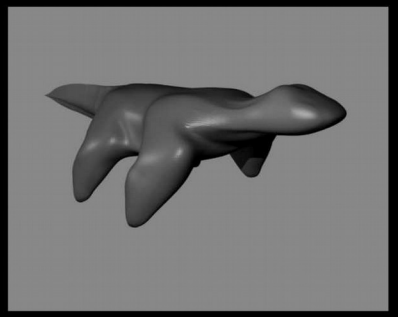
Bienenschwarm
In der Natur wimmelt es rund um einen Bienenstock nur so von, scheinbar willkürlich und völlig zufällig, umher fliegenden Bienen.
Dieses Verhalten habe ich im obenstehenden Bild dargestellt.
In der Mitte des Schwarms befindet sich die etwas grössere Bienenkönigin

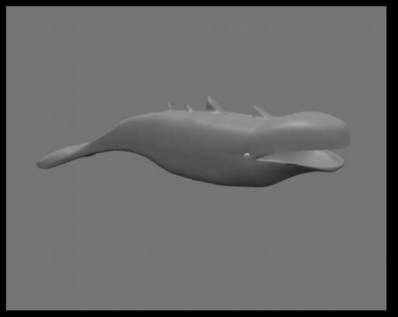
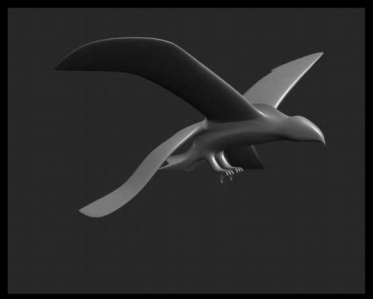
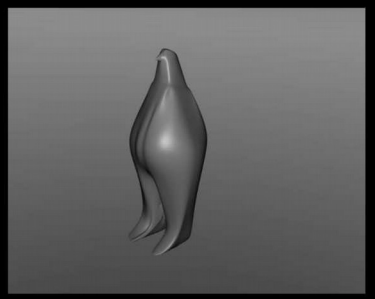
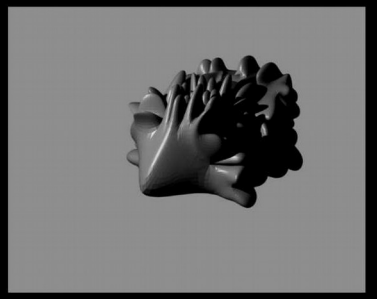


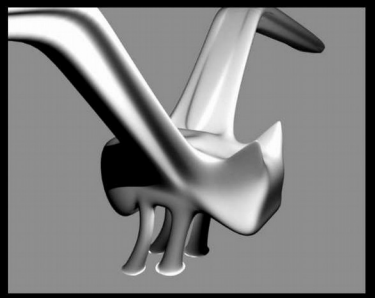


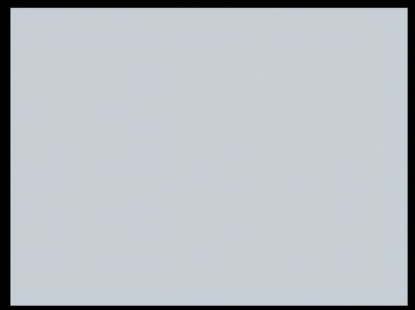
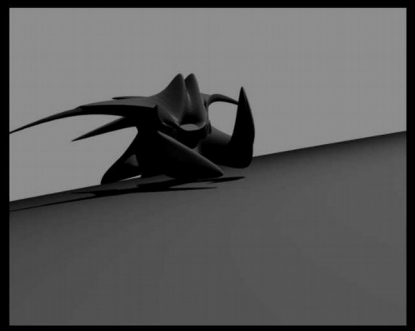






Blender Community

http://www.blender.org/

Blender Conference Development Documenters User Community

Blender is being made by hundreds of active volunteers from around the world; by studios and individual artists, professionals and hobbyists, scientists and students, VFX experts and animators, and so on. All of them are united by the desire to have access to a fully free/open source 3D creation pipeline.

The Blender Foundation supports and facilitates these goals – even employs a small staff for that – but depends on the online community to achieve this goal. More help is always welcome!

Blender Conference 2013 – "Ask the coders" session

Development

Blender is an open source project licensed under the GNU GPL. All code is written in C, C++

:/uploads/2012/11/bcon13-ask-coders.jpg

Documentation

A large number of people are helping with the Blender wiki to organize and write our

Education

The Blender Foundation considers education and training projects crucial for a successful

Donations and Sponsors

The Blender Foundation is an an independent

Blender Community

http://www.blender.org/

Blender Community

http://www.blender.org/

Thomas Dinges	Smart sampling - Tips for Cycles rendering	W
Sebastian Ullrich	Heart Surgery Simulation with Blender and H3D	Ta
Bartek Skorupa	Compositing Workshop: Cycles vs. VRay	W
François Gastaldo	QUIPCam: a fast HDR setup using OSL	Ta
Graham Knott	Case Study Presentation: Analysing the brain with Blender	Ta
Ton Roosendaal	Foundation feedback meeting	Ro
Sean Kennedy	Using Blender for VFX in Hollywood	Ta
Christian Rantzow - Consuelo Pecchenino	Challenge: The use of Blender in a 1-month work on a stereoscopic glass explosion for cinema	Ta
Gottfried Hofmann	OSL for artists (and developers) – Building up a toolbox for procedural textures	Ta
Michal Mielczynski	RayPump - the Online Cycles Accelerator for Blender	Ta
Sergey Sharybin	One year of blender development	Ta
François Zajéga	ProcessingBGE (PBGE), a blender game engine API	Ta

Blender Community

http://www.blender.org/

http://wiki.blender.org/index.php/Doc:2.6/Manual

http://www.blendernetwork.org/

http://www.blender.org/forum/

http://blenderartists.org/forum/

http://blendpolis.de/

Digitale Bilder- Programme

GIMP

Digitale Malerei

3D Modeling

Rastergrafik

Krita

3D-Grafik

Digitale Fotografie
Manipulation, Collage

Scribus

CAD

Blender

Layout, DTP

Inkscape

Game Design

Schriftgestaltung

Illustrationen

3D Animation

Vektorgrafik

Generative Gestaltung

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Robotik

Diagramme

2D **Animation**

Daten-Visualisierung

FontForge

Animierte Rastergrafik

Arduino

DIA

Videoschnitt

Animierte Vektorgrafik

Blender

Synfig

Kdenlive, Avidemux, OpenSho

Voraussetzungen

Information – **Aufklärung** in der Lehrer/innen-Ausbildung

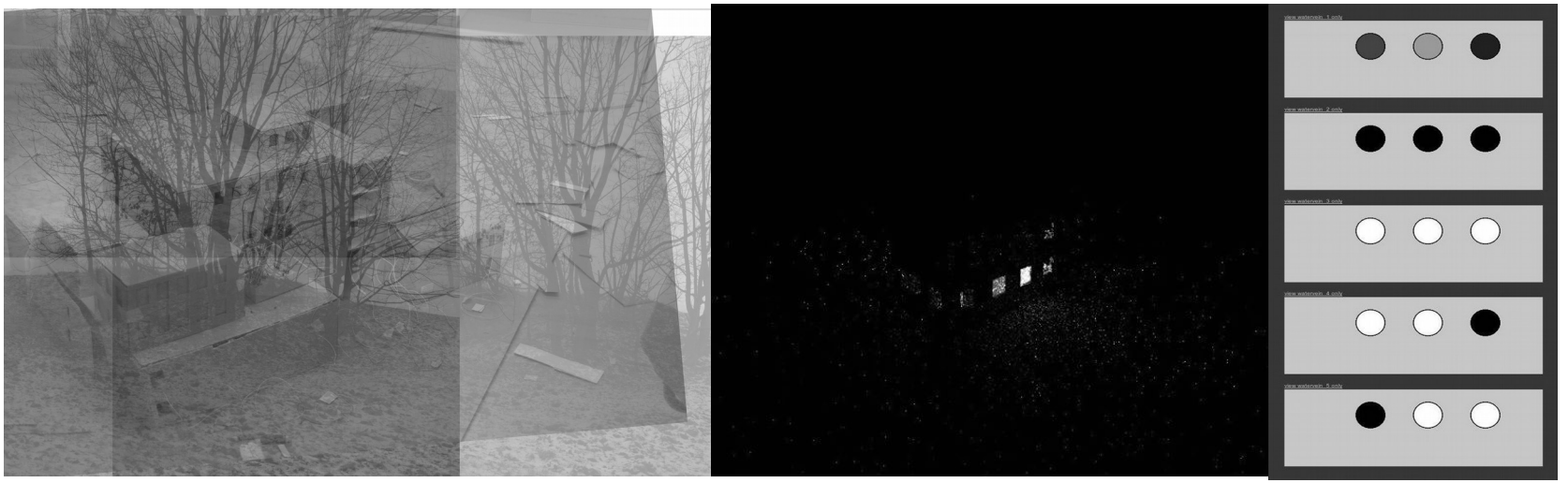
Pädagogische Zielsetzung in der Vordergrund stellen

Fachwissen über den Arbeitsbereich
(z.B. 3D-Modeling)

Fachliche Inhalte- Lerninhalte
(z.B. BG- Komposition)

Anwenderkenntnisse
(z.B. Blender)

Digitale Bilder erzeugen und bearbeiten mit GIMP, Inkscape, Blender und anderen Open Source Tools



Für den Netzwerkanlass OSS & Schule am 16. Januar 2014

Adriana Mikolaskova Nautsch