

Curriculum Vitae - Mike Boers

email: mail@mikeboers.com

website: http://mikeboers.com

phone: 604-728-2092

EDUCATION and EMPLOYMENT

Sept. 2011 to Dec. 2011 **Teaching Assistant** for CS314 “Computer Graphics: Rendering” at UBC.
 Sept. 2011 Accepted to **MSc Graduate Program** in Computer Science at UBC.
 May 2011 to Jan. 2012 **Research Assistant** in PSM/Imager lab at UBC for Dr. Wolfgang Heidrich and Dr. Alla Sheffer.
 Oct. 2010 to March 2011 **VFX Technical Director and VFX Software Developer** at Spin VFX.
 Jan. 2010 to present **Freelance VFX Supervisor, Technical Director, Developer, and Artist.**
 Aug. 2008 to Jan. 2010 **VFX Research and Development, VFX Artist** at Pix Ray VFX.
 July 2008 to Aug. 2008 **Intern; VFX Research and Development, VFX Artist** at Pix Ray VFX.
 2004 to 2008 **Honours BFA in Film Production** at York University.
 2002 to present **Freelance Web Developer.**

SCHOLARSHIPS and AWARDS

Silver “Audience Choice Award, Best Canadian Short Film” for “Blind Spot” from Toronto After Dark Film Festival, 2011.
“Best Editing” award for “Outpost 62” from Cinesiege, 2008.
Entrance Scholarship of \$4000 from York University, Sept. 2004.
Marion Drysdale Award in “French or English video/audio/animation” category for “Reciprocation” from the Ontario Secondary School Teachers' Federation, 2003.

RECENT FILMOGRAPHY

VFX Consultant - “Laughing Out Loud” by Dan Clements. Comedy, RED, 2012.
VFX Lighting Technical Director - “The Borgias” (episodes 4-9) produced by Showtime. Drama, 55 min per episode, HD, 2011.
VFX Software Developer - “The Borgias” (episodes 1-9) produced by Showtime. Drama, 55 min per episode, HD, 2011.
VFX Supervisor and Producer - “Blindspot” by Matthew Nayman. Drama, 5 min, HD, 2010. Official selection at 2012 Miami International Film Festival, 2011 Leeds International Film Festival, 2011 Austin Film Festival, and 2011 Toronto After Dark Film Festival.
VFX Supervisor - “Edward” produced by Major St. Productions. Drama, 8 min, HD, 2010.
VFX Artist and VFX Software Developer - “Asteroid Impact” produced by TV6 LTD Great Britain / BBC. Documentary, HD, 2009.
VFX Artist and VFX Software Developer - “Mayday” (season 8) produced by Cineflix. Documentary, 43 min per episode, HD, 2009.

- VFX Artist** - "Vote 08" US Presidential Election commercial bumpers, produced by ABC. HD, 2008.
- VFX Artist and VFX Software Developer** - "Mayday" (season 7) produced by Cineflix. Documentary, 43 min per episode, HD, 2008.
- VFX Supervisor** - "The Black Shell" by Matthew Nayman. Drama, 18 min, HD, 2008.
- Editor** - "The Black Shell" by Matthew Nayman. Drama, 18 min, HD, 2008.
- VFX Artist** - "The Dead Girl" by Alex Unger. Drama, 11 min, HD, 2008.
- VFX Supervisor** - "Freezer Repairs" by Amanda Fahley. Drama, 14 min, Super 16mm, 2008.
- VFX Supervisor** - "Harvest Dance" by Juan Manuel. Drama, 9 min, 16mm, 2008.
- VFX Supervisor** - "Inconvenience" by Elli Weisbaum. Comedy, 17 min, 35mm, 2008.
- VFX Supervisor** - "Outpost 62" by Luke Van Osch. Drama, 5 min, Super 16mm, 2008.
- Editor** - "Outpost 62" by Luke Van Osch. Drama, 5 min, Super 16mm, 2008.
- VFX Artist** - "A Pretty Funny Story" by Evan Morgan. Comedy, 27 min, HD, 2008.
- VFX Supervisor** - "A Stir in the Forest" by Madeline Sims-Fewer. Drama, 16 min, HD, 2008.
- VFX Supervisor** - "A Fear of Light" by Simone Roper. Drama, 12 min, Super 16mm, 2007.
- VFX Artist** - "The Good Son" by Amar Wala. Drama, 14 min, Super 16mm, 2007.
- VFX Artist** - "Minimum Buy-In" by Maria Ponnambalam. Drama, 16 min, Super 16mm, 2007.
- Editor** - "Fare" by Matthew Nayman. Drama, 13 min, HD, 2007.

GRAPHICS SOFTWARE PROJECTS

- ID/AO Point Cloud Pipeline**, for Spin VFX. A suite of shaders and tools to, with little effort from the artist, bake a radiosity point cloud, calculate multiple bounces of indirect diffuse and multiple distances of ambient occlusion in a highly parallel manner on a render farm, and finally render the results in a single pass. Months after I left Spin, this toolkit facilitated a single lighter to finish 16 shots for the second season of *The Borgias* in 12 days. 2011.
- Course Materials for CS314**, for UBC. A set of programming assignments for the third year "Computer Graphics: Rendering" course offered in the computer science department at UBC, covering the entire OpenGL rendering pipeline, and a near-RenderMan-compliant raytracer.
- NPR of Normal Fields**, for Dr. Alla Sheffer. A rendering pipeline to generate aesthetically pleasing, non-photorealistic images from a set of bezier boundary curves and a normal field using Gooch-based shading and a novel line hatching approach. 2011.
- Multi-Dimensional-Array Visualizer**, for Dr. Wolfgang Heidrich. A realtime interactive data explorer for multi-spectral (often 16 channels) and multi-dimensional (up to 3 and time) datasets. 2011.
- MayaMan mm_magic Fork**, for Spin VFX. A series of patches to the Shading Language generation subsystem including fixing a number of bugs (e.g. improper normal face-forwarding during bump/bake), adding addition surface export functionality (eg. bump influenced incident light export), and other tweaks necessary for seamless integration into Spin's pipeline. 2010.
- PRMan Bake to AIR Render**, for Spin VFX. A suite of tools to utilize the advanced baking functionality of Pixar PRMan, and to translate resultant bakes (in the form of point clouds) into a form ideal for use in SiTex Graphics AIR. 2010.
- Render-time Instancer**, for Pix Ray VFX. A comprehensive tool for SideFx Houdini that instances points, volumes, blobbies, or geometry archive sequences at render-time in a RenderMan compliant renderer. Instances are positioned and animated according to interpolated key-value data attached

to a point cloud. Designed to minimize memory usage allowing for many times more instances than could be held in memory with a more simplistic approach. 2008 to 2010.

pixraylib, for Pix Ray VFX. A Python package which serves as the basis for most projects at Pix Ray. Various classes allow for seamless communication between Houdini nodes and Python code run in a RenderMan compliant renderer via either the Procedural “RunProgram” call, or a RIB Filter. Also contains modules implemented in C for various space-subdivision algorithms (ie. KD trees), linear algebra, and various noise functions. 2008 to 2010.

Point Based Volumes, for Pix Ray VFX. A set of RenderMan shadeops implementing a complete and self-contained point cloud query system allowing for access to arbitrary key-value data from the set of points returned from any of several query types (e.g. closest N points, points within X radius, self-described spheres intersecting a given point). 2009.

Embedding Python in AIR, personal project. A proof of concept embedding of a Python interpreter into a SiTex Graphics AIR Instancer shader via a C shadeop, giving the running script access to all shadeops available in the shading language context, including methods to make queries of the geometry itself. 2009.

Crowd Generator, for Pix Ray VFX. Allows render-time generation of agents in a RenderMan compliant renderer, transitioning through existing animation loops, and driven by arbitrary key/value data attached to a point cloud. 2008 to 2009.

Foliage Generator, for Pix Ray VFX. Allows render-time generation of large amounts of unique foliage of a variety of types. Uses L-Systems or assembles instances out of recursively arranged pre-generated geometry. 2009.

Houdini Fur for AIR, for Pix Ray VFX. A fur rendering system for a RenderMan compliant renderer using the interface provided by Houdini's existing fur system, including style shaders which mimic those provided by Houdini. 2009.

AutoSHOP, for Pix Ray VFX. A RenderMan shading language header file and SideFX Houdini SHOP node designed in concert to allow for auto-generation and interpretation of advanced GUI elements (gradients, menus, etc.) otherwise incomprehensible to the shading language. 2009.

Houdini Volumes in AIR, for Pix Ray VFX. A toolkit to translate either voxel based or point based volume data with arbitrary key-value data from Houdini to a RenderMan compliant renderer. 2009.

Dynamic Volume Region, for Pix Ray VFX. A RenderMan procedural which generates the necessary “Volume” primitives to encase a given point cloud. This tool minimizes the rendering of empty space and allows for significant translations of the point data without displaying typical boundary or detail-size artifacts. 2009.

Fire and Smoke, for Pix Ray VFX. A set of RenderMan surface shaders mimicking pyroclastic smoke and fire, written using my Point Based Volume query engine described above. 2009.

Fluid Sim Blobbies, for Pix Ray VFX. A set of RenderMan shadeops and Python scripts to convert fluid simulation data from RealFlow into geometry at render-time. 2009.

Raytracer, personal project. A basic raytracer written in C++ including several primitive geometric shapes (including meshes), several types of lighting (including indirect diffuse and ambient occlusion), and a basic set of surface shaders. 2008.

OTHER RELEVANT SOFTWARE PROJECTS

ScoreBee, personal project under BSD license at <http://github.com/mikeboers/ScoreBee>. A GUI application for scoring behaviors in digital video, designed borrowing techniques from film editing

software allowing for more intuitive use than available existing products. Originally written for development on:

Stemberger T.L.M., Fitzpatrick M.J., Food fights: evidence of a conditional strategy in adult Drosophila simulans males as a result of larval nutrition. (in preparation)

2010 to present.

PyTomCrypt, personal project under BSD license at <http://github.com/mikeboers/PyTomCrypt>. Python wrapper around LibTomCrypt cryptography library. Written primarily in generated Cython, the wrapped crypto tools are 400-500x faster than simple calls to external program. Designed to have a much simpler API than existing Python crypto packages. 2009 to present.

nitrogen, personal project under BSD license at <http://github.com/mikeboers/nitrogen>. A Python web framework and collection of web development tools created over the course of several freelance web projects. 2008 to present.

There are several more open source software projects that I either started or contribute to hosted at <http://github.com/mikeboers>.

OTHER RELEVANT PROJECTS

<http://secrettrial5.com>, for Amar Wala and myself. Featuring donation collection built on top of PayPal, and client editability with varying permissions on different administrators (e.g. the editor may only post to the blog, not deal with donations). 2010 to present.

<http://gladioliworkbook.com>, for Regina Stemberger, a project in which every 24 hours the owner must write a short story/poem in response to a photo (chosen for her) from Flickr.

<http://swissol.com>, for SwissSol Creative Body Care Inc. Featuring ecommerce built on top of PayPal and UPS/FedEx APIs, on-demand image cropping/sizing, and client editability. 2009 to 2010.

<http://msgonce.com>, one-day personal project with Shane Martin. A web service to assist in discreet and anonymous transfer of information between parties on the internet. 2009.

<http://mknayman.com>, for Matthew Nayman. Featuring a gallery built on top of Flickr and Vimeo APIs, and client editability. 2009.

<http://rebelhouse.ca>, for The Rebel House. Featuring client editability with varying permissions on different administrators (e.g. to allow the kitchen staff to update the daily specials but nothing else), and gallery built on Flickr API. 2008 to 2009.

<http://pixray.ca>, for Pix Ray VFX Inc. Featuring client editability and a browser based file management system for arbitrarily large files. 2009.

The Shutterbug, personal project. I attempted to post a new photograph that I captured and processed to my website every day. June 2005 to April 2007.

RELEVANT EXTRA-CURRICULARS

August 2011 - **Attended full "SIGGRAPH 2011" conference** in Vancouver,

July 2010 - **Participated in "Technical Evenings"** hosted by SideFX entitled:

- "FLIP Fluids"
- "Mantra and Houdini 11"

October 2009 - **Participated in PyGTA meeting** entitled "RESTful APIs".

June 2009 to July 2009 - **Participated in “Technical Evenings”** hosted by SideFX entitled:

- “Distributed Fluid Simulations”
- “PyroFX”
- “Crumpling and Tearing”
- “Introduction of Houdini 10”

Oct. 2008 to Dec. 2008 - **Participated in “Technical Evenings”** hosted by SideFX entitled:

- “In-Depth Look At Fur”
- “Advanced Tool Building”
- “On Fire”
- “Rendering With Mantra”
- “Programming Houdini with Python”

SUMMARY of KEY SKILLS and AREAS OF FOCUS

- Experience as first and second editor on a wide variety of dramatic, comedic, documentary, corporate, and experimental films.
- Experience compositing, motion tracking, chroma-keying, and matte painting.
- Experience with on-set visual effects coordination for several short films.
- Experience as lighting, shading, and rendering Technical Director.
- Experience with SideFX Houdini, Autodesk Maya, Pixar PRMan, SiteX Graphics AIR, DNS Research 3Delight, Animal Logic MayaMan, Foundry Nuke, eyeon Fusion, Adobe After Effects, Pixel Farm PTrack, Imagineer Systems Mocha, Adobe Photoshop, Apple Final Cut Pro, Maxon Cinema 4D.
- Knowledge and experience developing software to integrate with or extend Pixar PRMan, SiteX Graphics AIR, DNS Research 3Delight (e.g. shadeops, RiFilters, procedurals, etc. for all three), SideFX Houdini, Autodesk Maya, and Animal Logic MayaMan.
- Knowledge and experience developing varied shaders for Pixar PRMan, SiteX Graphics AIR, DNS Research 3Delight (including co-shaders via RSL 2.0), SideFX Houdini (i.e. mantra), and OpenGL.
- Understanding of many of the algorithms and technology behind the entire rendering pipeline, both offline (e.g. REYES/rasterization, raytracing) and realtime (e.g. OpenGL rasterization).
- Knowledge and experience in the theory and practice of software development covering many realms, from dynamically translated and interpreted languages all the way to the bare metal.
- Highly proficient with applied mathematics and physics, including classical mechanics and rigid dynamics (often scoring the highest final grade in classes otherwise filled with math or physics majors).
- Knowledge and experience with server side web development and network transport mechanisms.
- Knowledge and experience with Python, the inner workings of the CPython implementation, writing extension modules with Cython or directly in C, and embedding CPython into other applications.
- Knowledge and experience with varied cryptographic primitives and open source cryptographically based protocols (e.g., oauth, openid, HTTP authentication, GPG, SSH, etc.).
- Understanding of many technical photographic concepts, encompassing optics, image capture and signal processing.
- Discipline in applying highly technical knowledge in such a way that my work exists solely to tell the story and not to be idolized for its own merits.