

Sakari Lehtonen :: Sakari@PsiTriangle.NET

Software Development, Graphics Programming, System Administration

Born Feb 1982 :: +358 400 370 339 :: Juhannustie 25 H 30, Helsinki

Main areas of expertise:

Languages: Main tools Modern C++, Javascript

Extensive experience with: Python, Lua, Java, C, Objective-C, shell scripting.

I always aim to produce modular and human readable code.

Graphics programming: OpenGL 4, HTML5 Canvas, Processing.

Developed my own 3D engine with C++ and OpenGL.

Frameworks & Environments: QT 5, QT Quick, Cocoa, Xcode, Eclipse, Android Studio, Vim :)

Web Development: HTML5, Javascript, Dojo, Node.js, Django, Apache, Lighttpd, Nginx etc, MySQL & MongoDB.

Graphics & Design: Photoshop, Affinity Photo & Design, Sketch, Final Cut Pro.

Linux/UNIX Administration: From purchasing to setting up and maintaining, automating, scripting, clustering, monitoring & high availability, I know my servers. Experience with 60+ server networks with nearly million daily users.

Formal education:

Bachelor of Engineering, Automation Technology,

Graduated from EVTEK in 2007

Human Languages:

Finnish, Native

English, Fluent

Basics in Swedish, Spanish, German



Creator

Javascript, HTML5, Canvas graphics, Node.js, MongoDB, fullstack

March 2011 – Present



OmniGeometry is my personal project. [Software for creating sacred geometry](#) in your browser. Public beta online since 2011, commercial version released in 2017. Tool for artists and creators to create recursive, circular fractal geometry, based on natural constants like the golden ratio. A tool for exploring and creating digital mandala patterns in realtime.

Crossplatform [HTML5](#), vanilla [Javascript](#) + [Dojo toolkit](#) on the frontend, [Node.js](#) + [MongoDB](#) in the backend. [Designed, coded, and published](#) from scratch. Learned a lot of 2D graphics programming, client & server interaction and what is it to code and launch a complete application (a lot of work! whew).

Now used by artists all around the world, eg. one british calligrapher Seb Lester who has 800k+ followers in FB.

In Summer 2017 started porting to native, downloadable desktop version, using [C++](#), [OpenGL](#) and [QT5](#) & [Qt Quick](#). Plan is to create a high performance, GPU accelerated, crossplatform version of OmniGeometry for desktop and possibly mobile platforms in the future.



mongoDB



Form Drawing Animation

Radius

Number of points

Recursion depth

Child radius ratio

Child points ratio

Fixed child points

Origo

Angle °

Form Drawing Animation

Line weight

Draw base

Draw points

Point to layer radius ratio

Fixed point radius

Fill points

Draw lines

Line joins

Fill shape

Scene zoom

Trace opacity

Form Drawing Anima

Animating

Draw traces

Scale

Rotate

Rotate hue

Scale high

Scale low

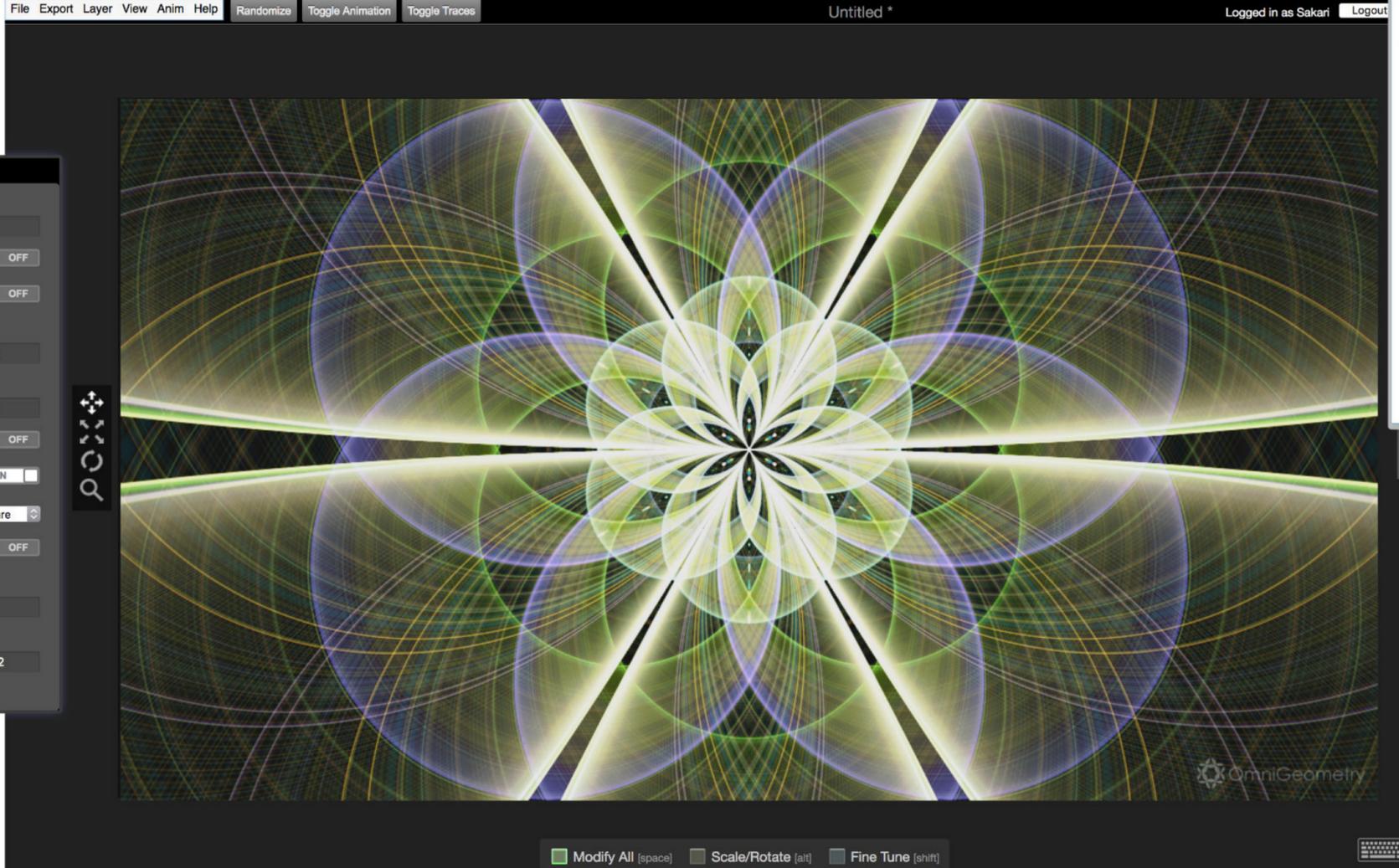
Scale frequency (cycles/sec)

Rotation velocity (°/sec)

Hue velocity (°/sec)

File Export Layer View Anim Help Randomize Toggle Animation Toggle Traces

Untitled * Logged in as Sakari Logout



OmniGeometry

Modify All [space] Scale/Rotate [alt] Fine Tune [shift]

Export PNG Image

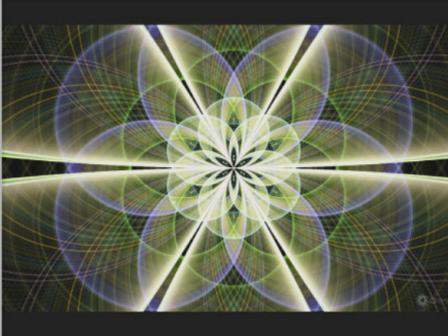
width px

height px

transparent background

Note: Exporting traced image, size fixed

preview



Cancel Export

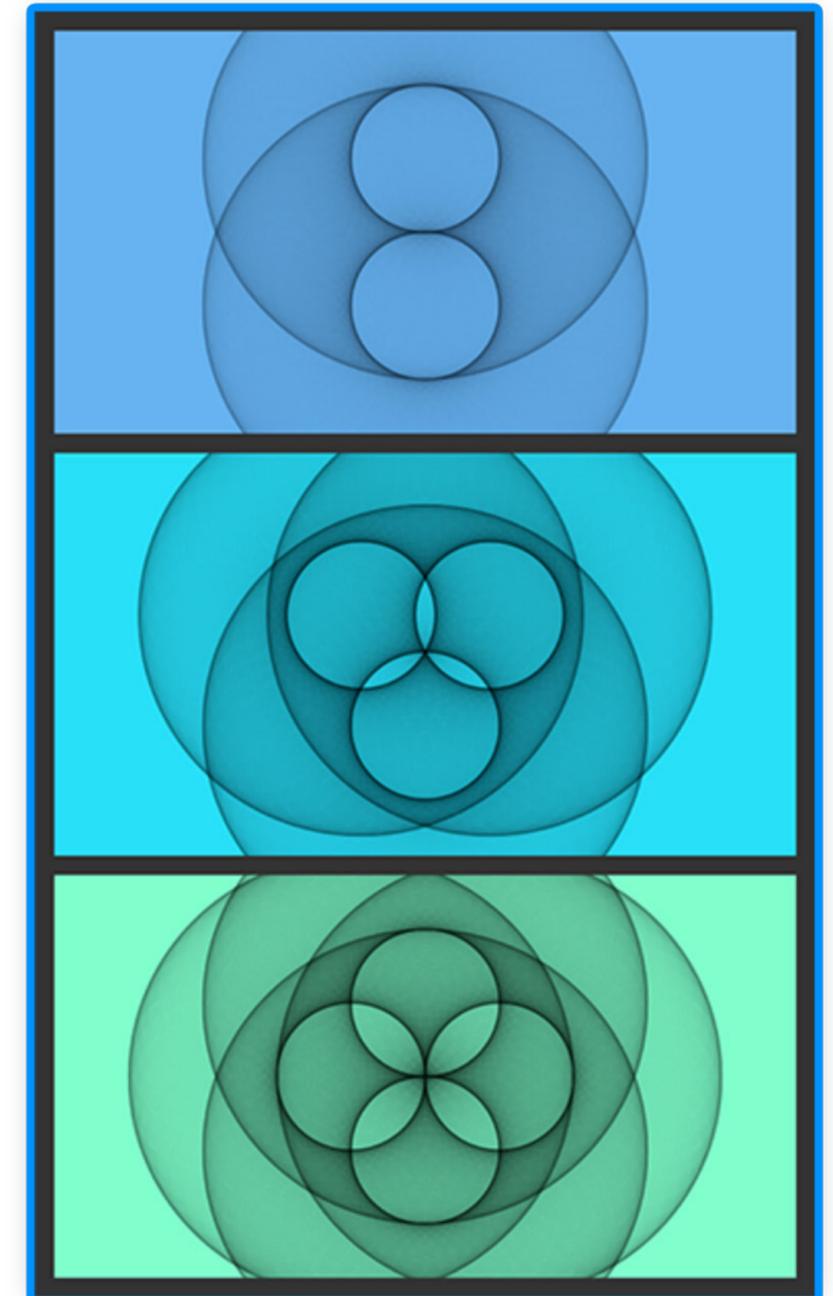
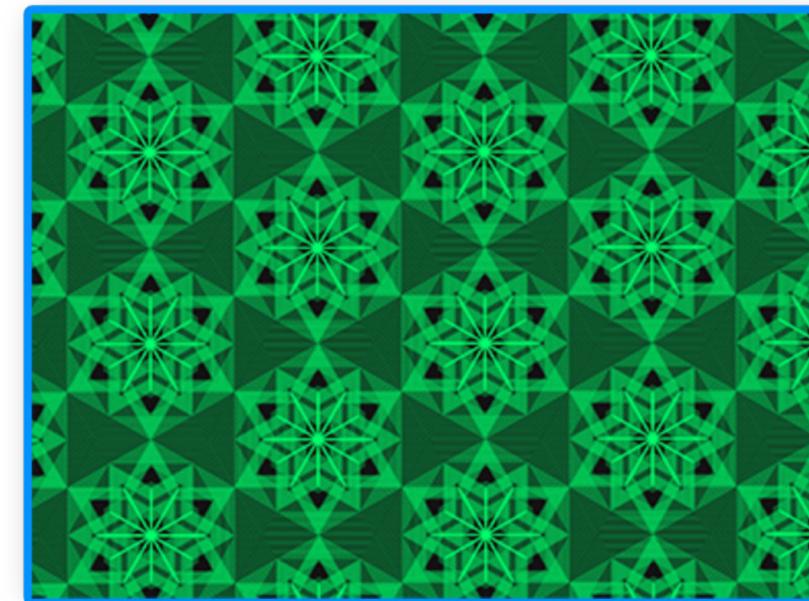
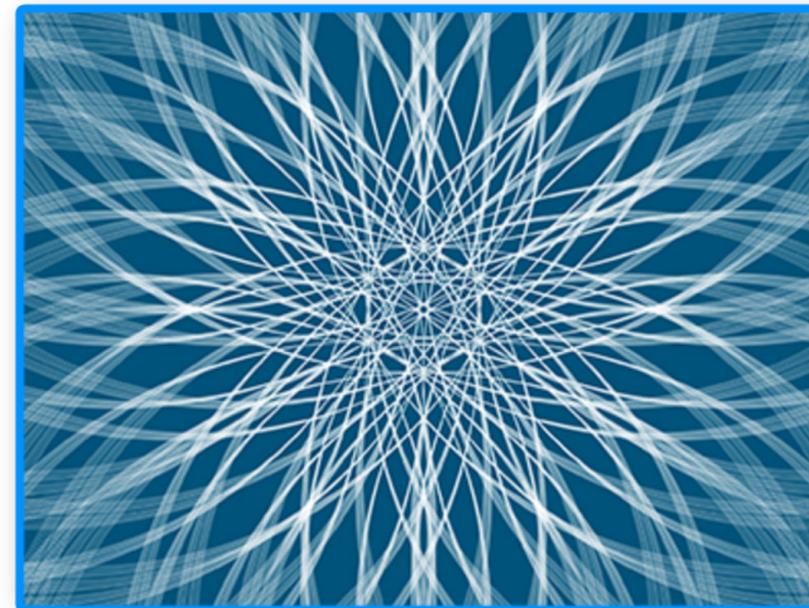
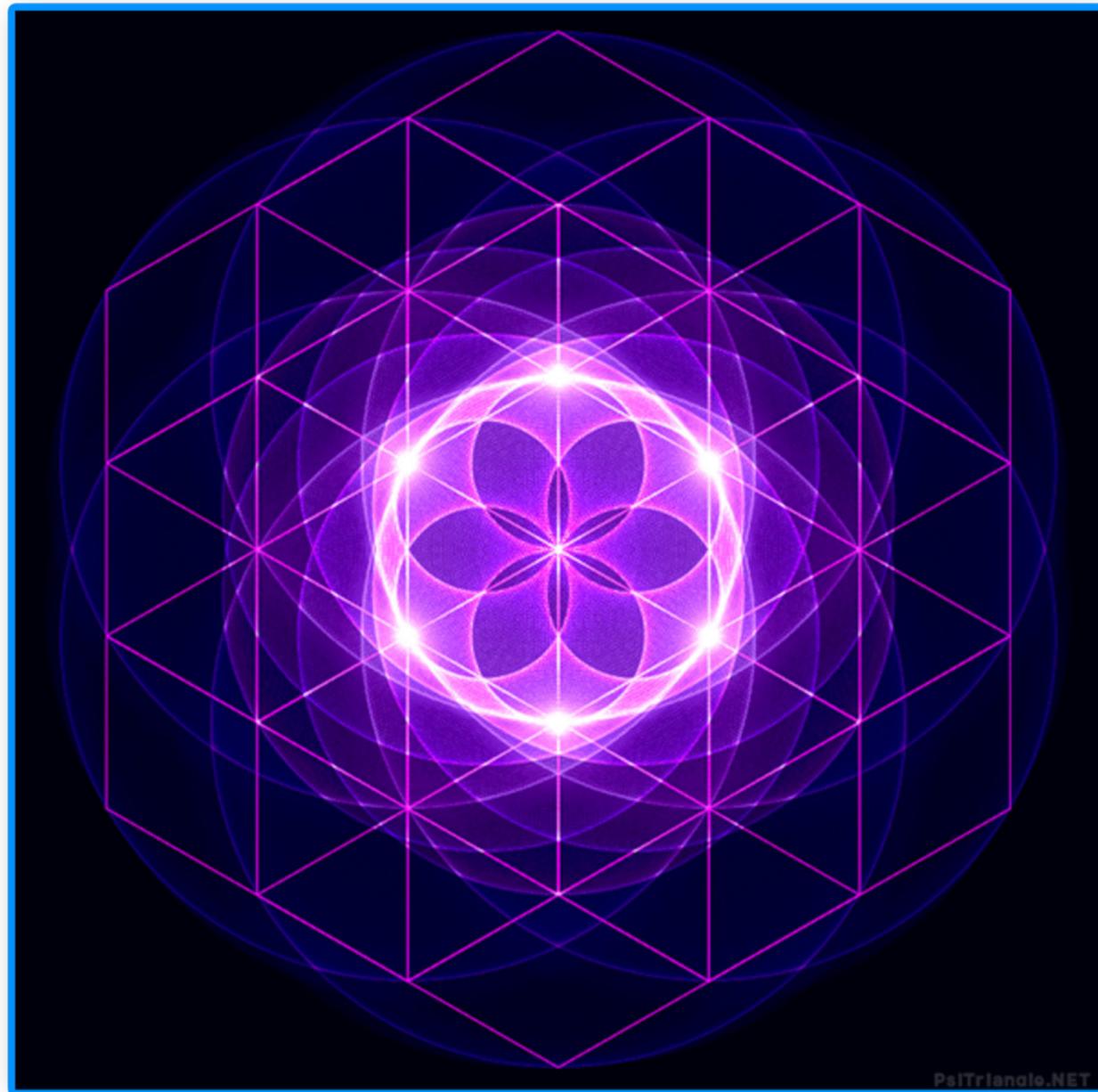
line canvas border Opacity

points fill



70 200 82

Couple of example images created with OmniGeometry, more can be found at <http://indigineous.tumblr.com> !



Lead Developer

Modern C++, OpenGL 4, Lua, Graphics Programming, Custom 3D engine

December 2013 – November 2016

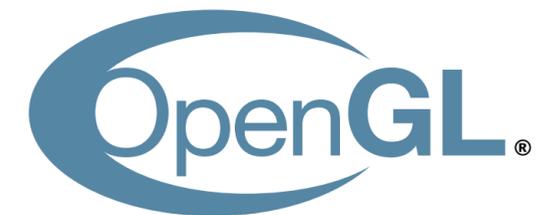


The idea for Geometrify was to develop a virtual reality experience where you dive deep into sacred geometry, synchronized to music in a meaningful way, creating an entrancing, meditative experience.

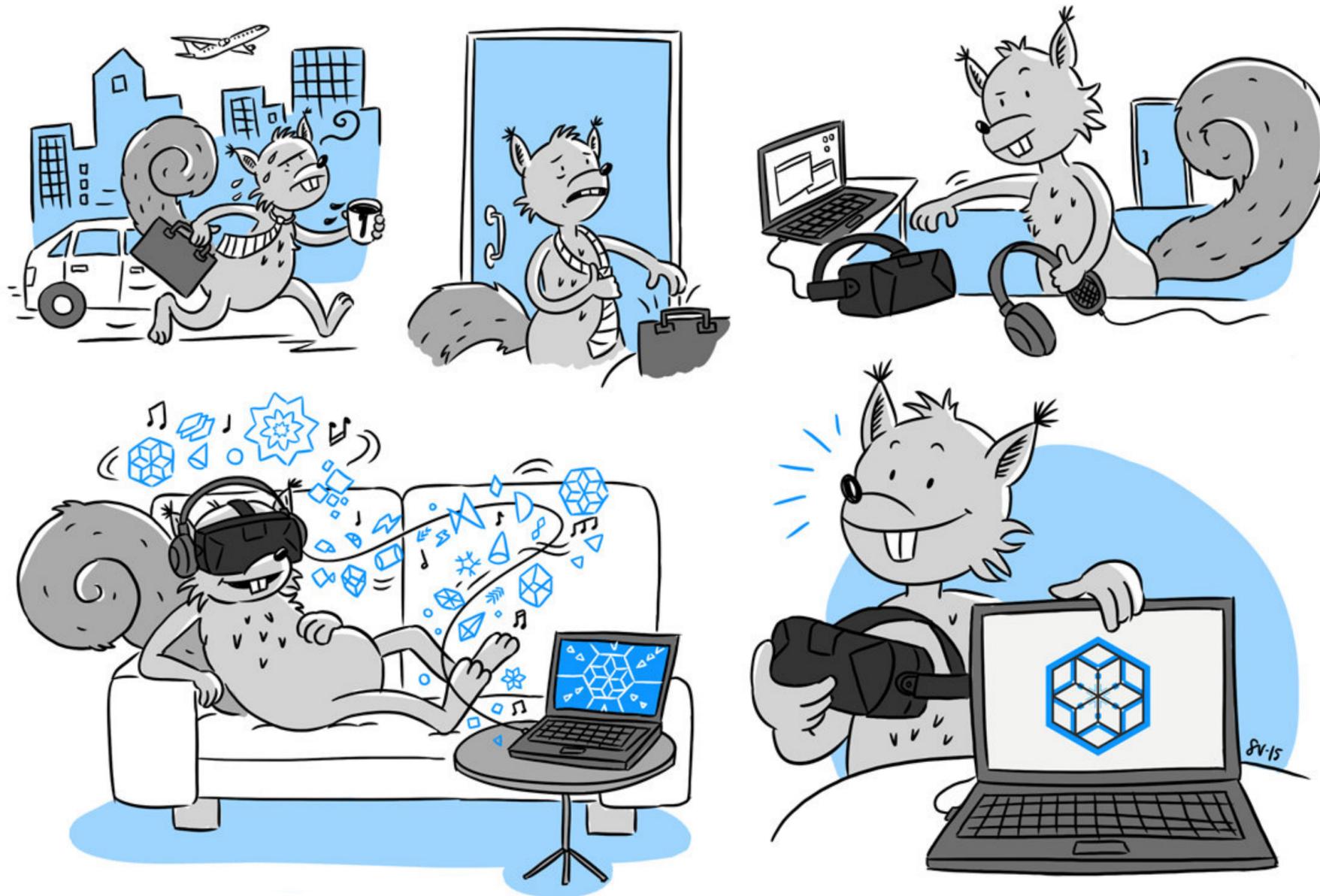
Started developing when Oculus released their first DK1 headset, leading to me develop my own 3D engine, as I really wanted to understand how a 3D engine works and to truly solve the problem I was facing. How to generate highly custom, constantly changing, dynamic fractal geometry? Existing 3D engines didn't seem suitable for our use case. Whew, if I only had known how much work this is :D

Also made a demo for the DK1, worked together with a partner and founded a co-op for the project. One of the first VR experiences shown to people in Finland. Demoted to over 1000 people in multiple countries, while seeking funding. Currently, my engine and application has these features:

- C++14 & OpenGL 4.2 with Lua scripting
- Geometry shader & transform feedback shader based recursive geometry rendering, 40+ parameters controlling the appearance of realtime, highly complex fractal geometry
- Implemented as separate C++ library, used by the core application
- Lua scripting for main application logic enables fast iteration and separation of dynamic and static code
- Loading and rendering of GLTF models
- Freetype text rendering
- VR support for Oculus DK1 & DK2
- Most geometry generated procedurally
- Modular, high quality, performant, crossplatform code



GEOMETRIFY experience



GEOMETRIFY™
virtual reality mandala experience



DIVE WITHIN
GEOMETRY

POWERED BY OCULUS RIFT VR HEADSET

[HTTP://GEOMETRIFY.NET](http://Geometrify.net)

Mobile Developer

iOS, Objective-C, HTML5, Javascript

December 2011 – December 2012, 12 months

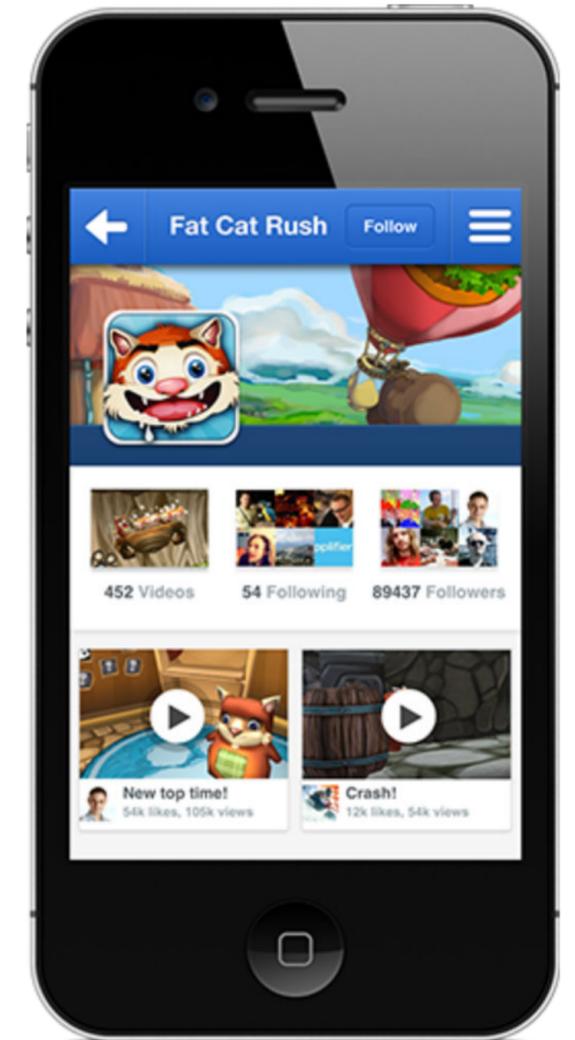


Joined **Applifier** with the title of **Mobile Developer**. **Developed new features** for their cross promotion iOS SDK that was distributed to game developers. Worked mostly with **XCode** and **Objective-C**, **ending up refactoring the SDK**, making it more maintainable and easier for the developers to add to their projects.

Designed and implemented new features, like the Leaderboards functionality, that was completed but not yet released.

Worked together with **Sega** to **implement Applifier cross promotion into five of their games** that were released in the Apple Store. Interesting project, got to work directly with source codes of their big brand names, like Sonic and Virtua Tennis :)

Was part of the team developing **Everyplay**, that allows game developers add video recording and sharing to existing **OpenGL** games. Included in the **Unity game engine** currently. **Implemented the base iOS user facing portions, UI, Interaction with HTML5 content** and the **native Video Player & Trimmer**. Challenging project technically, as the iOS side had to work smoothly with the HTML5 content.



EVERYPLAY



Game Programmer

Java, Objective-C, C++, Cocoa, Eclipse, Xcode, Microtransactions, iPhone, iPod Touch

10/2009 – 03/2010, 5 months



Designed and implemented a microtransaction framework for **Fantasy Warrior: Legends**, a **iPhone** game developed at **Digital Chocolate**. The framework allowed players to purchase in-game items from the **Apple Store**.

Designed the functionality & programmed the **Ingame Store UI** where the player purchases the products. **Wrote product descriptions** for the gemstones and also **figured out pricing related issues**.

Worked with **Objective-C/C++/Cocoa** on the microtransaction framework, **Java** with the game and UI. Build process was to convert the **Eclipse** Java project with an inhouse tool to a **XCode** Objective-C++ project, then compile to a native **iPhone** application. Debugging was challenging :)



System Administrator

Linux, RPM, Automation, Scripting, Infrastructure, Clustering, F5 load balancer, VMWare, Cisco, MySQL, Apache, Facebook

04/2008 – 10/2009, 18 months



Worked as a **Linux Systems Administrator** in one of the biggest **Social & Mobile Game Companies** in **Finland**. Part of an international team that had members working in **Helsinki, Barcelona, San Mateo** and **Bangalore**. **Helped closely a team of game developers, wrote RPM packages, scripted and automated deployment of Facebook games.** like **TowerBloxx** with over one million registered users.

Rewrote system for deploying of new Linux-servers hosting games and services. **Maintained a total of over 60+ Linux-servers** set up in **Helsinki** and **San Mateo**. **Administered F5 BigIP Load Balancers** and **Cisco Routers**. Maintained dozens of enterprise level **MySQL Databases**. Worked with heavy duty **VMWare ESX server solutions** providing virtualization of Linux Servers.

Had the great opportunity to work on-site at **San Mateo, California** for three weeks for Training and onsite installation of new **servers and infrastructure**.



Development Engineer

Automation, Data Logging, Visual Basic, OPC, SQL Server

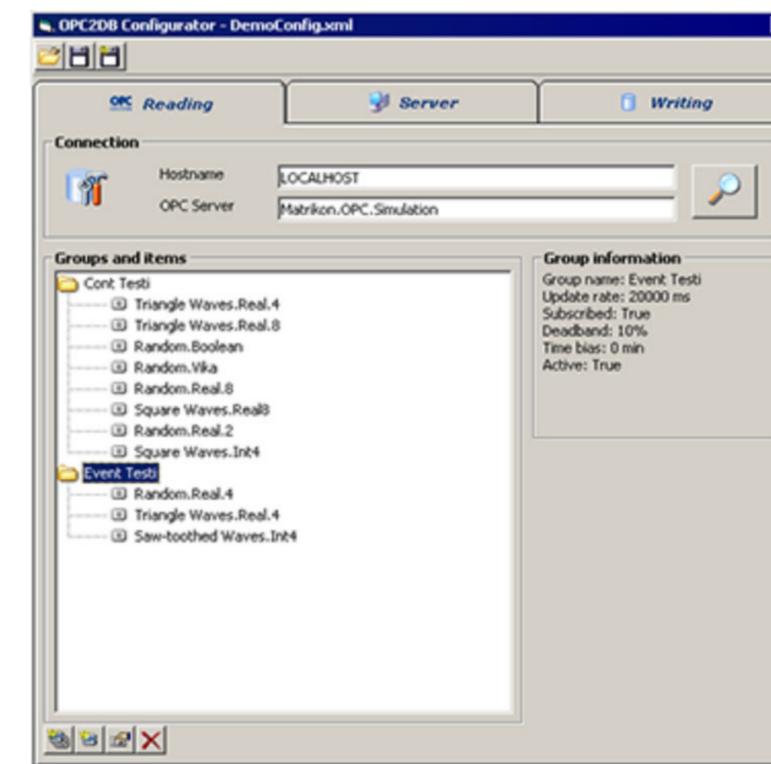
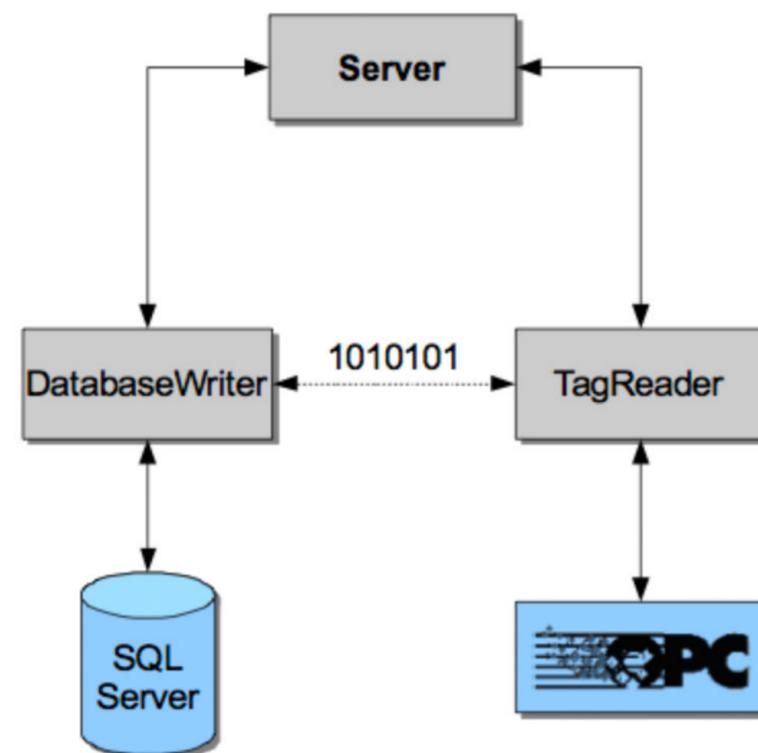
12/2006 - 04/2008, 14 months

Outotec

Worked on my **Automation Engineering Thesis** on developing a **history and data logging tool** for **Outotec PSI 500 mineral fluid analyzer**.

Designed and implemented a **Windows server application** that reads measurement data from **OPC servers** and stores them into a **Microsoft SQL Server database** and calculates different average values for those measurements realtime.

Also **designed and programmed a configurator interface** that can be used to make **XML configuration files** for the application. Implemented with **Visual Basic 6** for compatibility with existing Outotec products.



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Personal projects

OmniGeometry

Designed for creating Sacred Geometry. A tool for artists, designers and those who wish to learn about geometry. <http://OmniGeometry.com>.

Umix, sound mixer tool for Linux, last version released in 2003, included with several Linux and BSD distributions, <http://umix.sf.net/>

Contributed code for [Gentoo](#), [Slackware](#), [Debian](#) and several other open source projects.

Positions of Trust

[Contact person](#) for our Automation class at EVTEK. This included different tasks of representation and handling of common tasks of our class.

[Founder and Leader](#) of the [#1 Quakeworld Modem Clan](#) in Finland, [Impulse](#).

Back in 1998 – 2001, we had [over 40 members](#) from different countries and won the

[Finnish modem championship](#) twice. Info: http://wiki.qwdrama.com/Impulse_%28Finnish_Clan%29

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Notable achievements

Won the demoscene compo @ Skrolli Magazine Party 2017. Made together with a musician friend, using my own 3D engine. Results at: <http://party.skrolli.fi/>.

Download the demo here (macOS 10.9+):

<http://www.pouet.net/prod.php?which=69986>

Third place in the graphics compo @ NVScene 2015 demoscene party, held in San Jose, California. Results and entry here: <https://demozoo.org/graphics/135081/>

Other projects and companies I've worked for

Solu Computers, 2016 (2 wks) : Fixing critical bugs in their UI

Vizor.io, 2016 (3 mo): Implementing features in their WebGL 3D engine (Three.js)

Dicole, 2010 (3 mo): HTML5 tagging framework for their learning environment (full stack)



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These were my most recent work projects. If you have any questions, feel free to contact me:

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Homepage: <http://PsiTriangle.NET>

Github: <https://github.com/inDigiNeous/>

Twitter: @inDigiNeous

LinkedIn: <https://www.linkedin.com/in/indigineous/>

In my personal life I am a father of one, and I enjoy videogames, exercise, bicycling, swimming and practicing close combat weapons and anything that can be juggled somehow :) I am a very capable of working independently, but the most I enjoy working with a good and talented team of enthusiastic people who love what they do. I aim for perfection, but understand to compromise when needed.

I aim to communicate clearly and to express myself honestly. Ultimately, I want to create positive changes in the way we live, through use of modern technology. This is what drives me. ^_^ -- Sakari

