Sakari Lehtonen :: Sakari@PsiTriangle.NET

Software Development, Graphics Programming, System Administration & Fullstack development

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

Main areas of expertise:

Programming: Main tools: Modern C++, Javascript
Extensive experience with: Objective-C, Lua, Java, Python, 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++11 and OpenGL 4.

Frameworks & Environments: QT 5 & QT Quick, Xcode, Eclipse, Android Studio, Vim :)
Web Development: HTML5, Javascript, Node.js
Databases: MySQL, MongoDB
Graphics & Design: Photoshop, Affinity Photo & Design, Final Cut Pro.

Linux/UNIX administration & backend development.

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

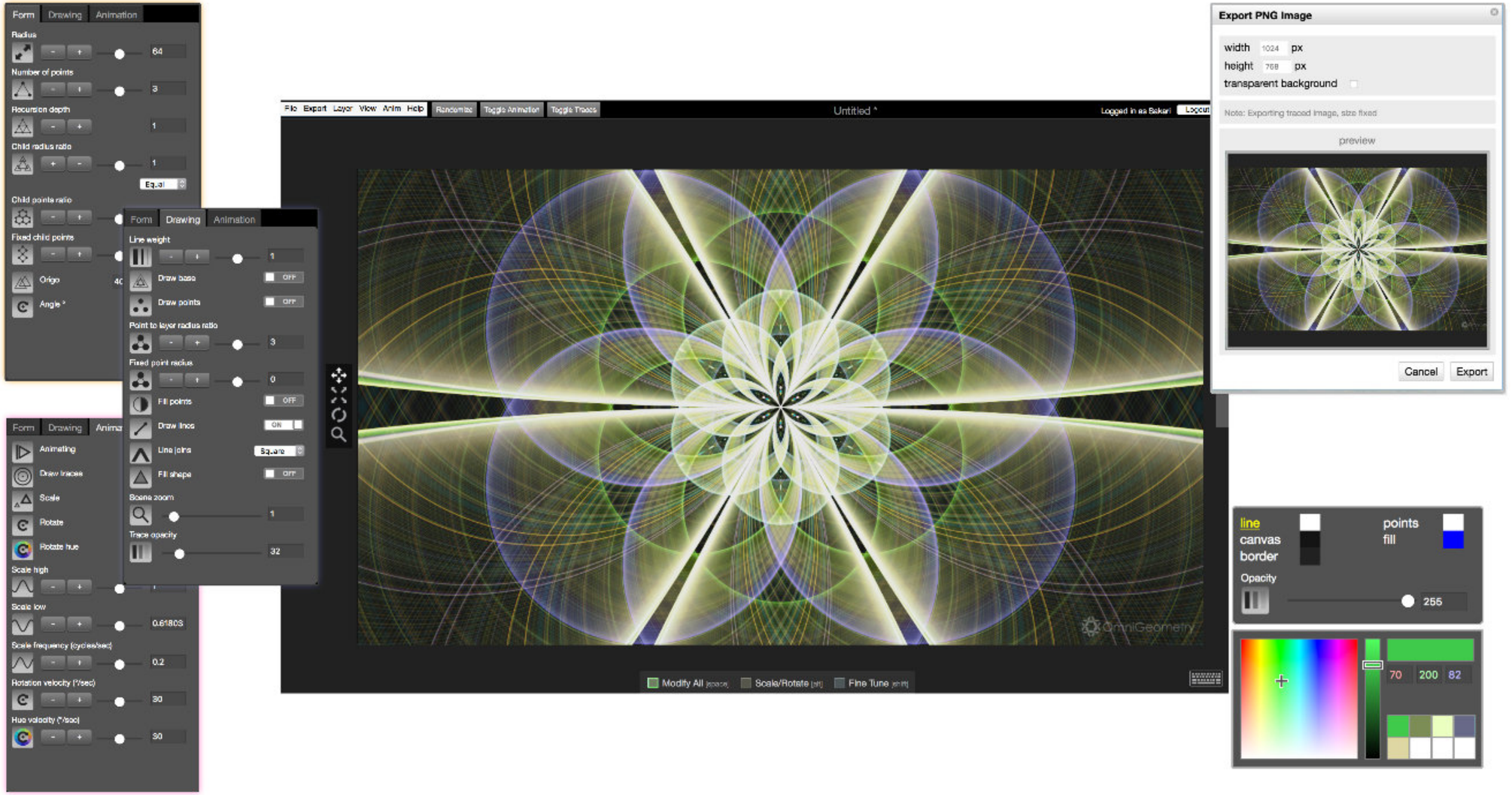
OmniGeometry is my personal project. Software for creating sacred geometry in your browser.
Public beta online since 2011, commercial version released in 2017. Tool for artists and creators
to create recursive, circular fractal geometry, based on natural constants like the golden ratio.
A tool for exploring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

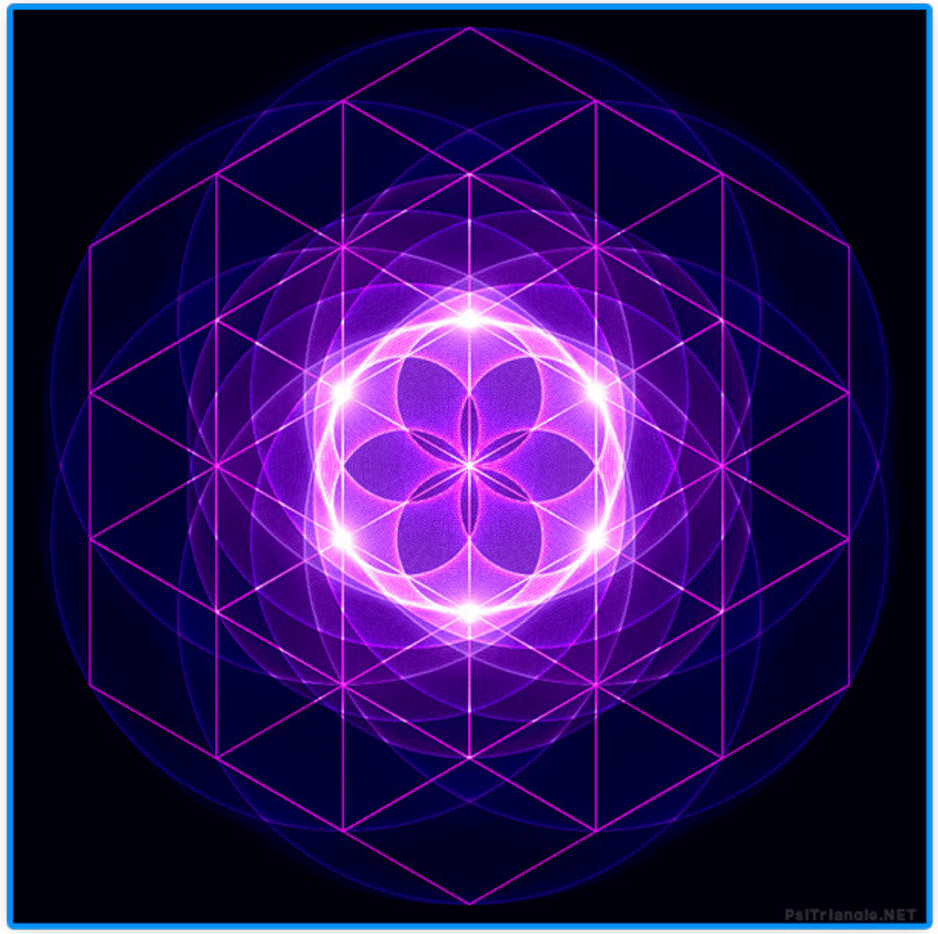
In Summer 2017 started porting to native, downloadable desktop version,
using C++, OpenGL and QT5 & Qt Quick. Plan is to create a high performance, GPU accelerated, crossplatform
version of OmniGeometry for desktop and possibly mobile platforms in the future.

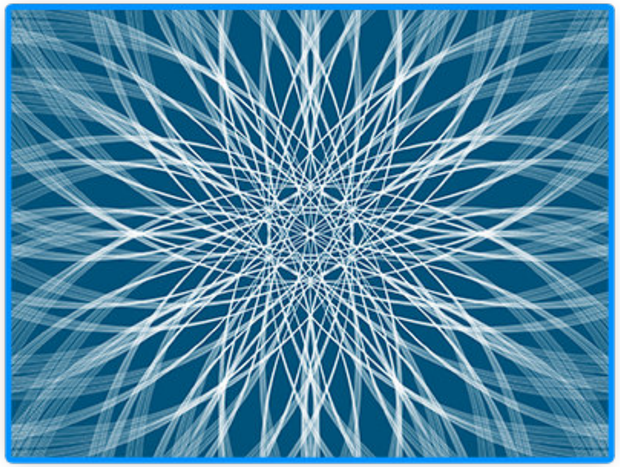
OmniGeometry

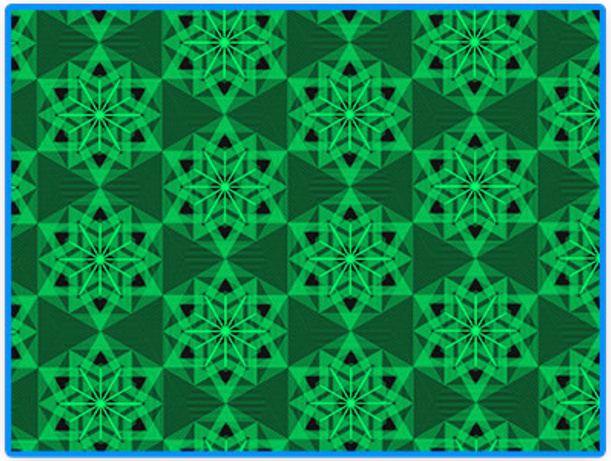


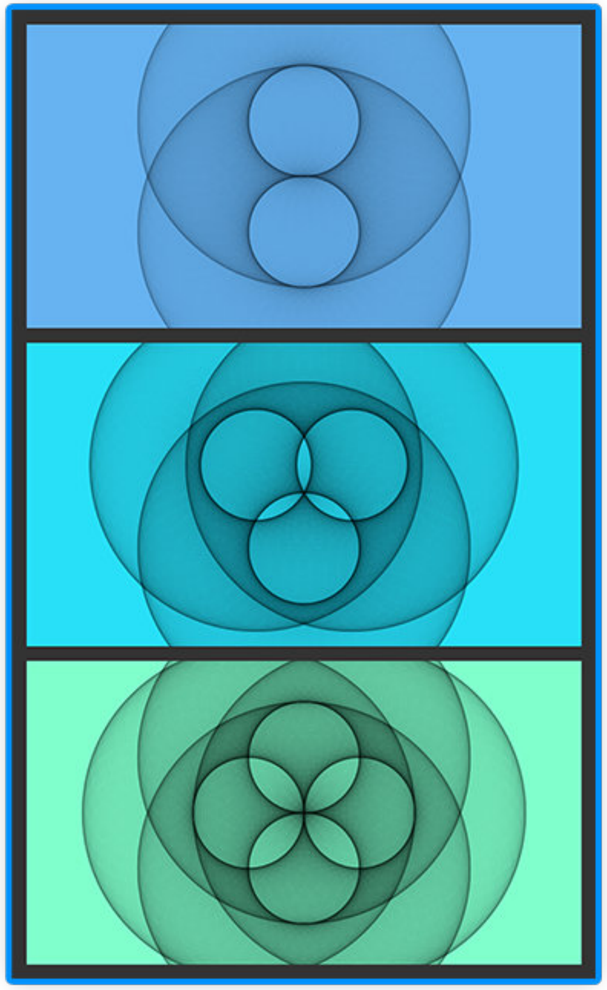
OmniGeometry

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

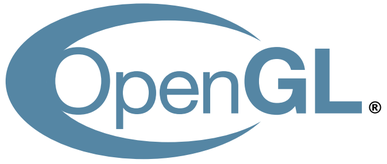
GEOMETRIFY™

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 a entrancing, meditative experience.

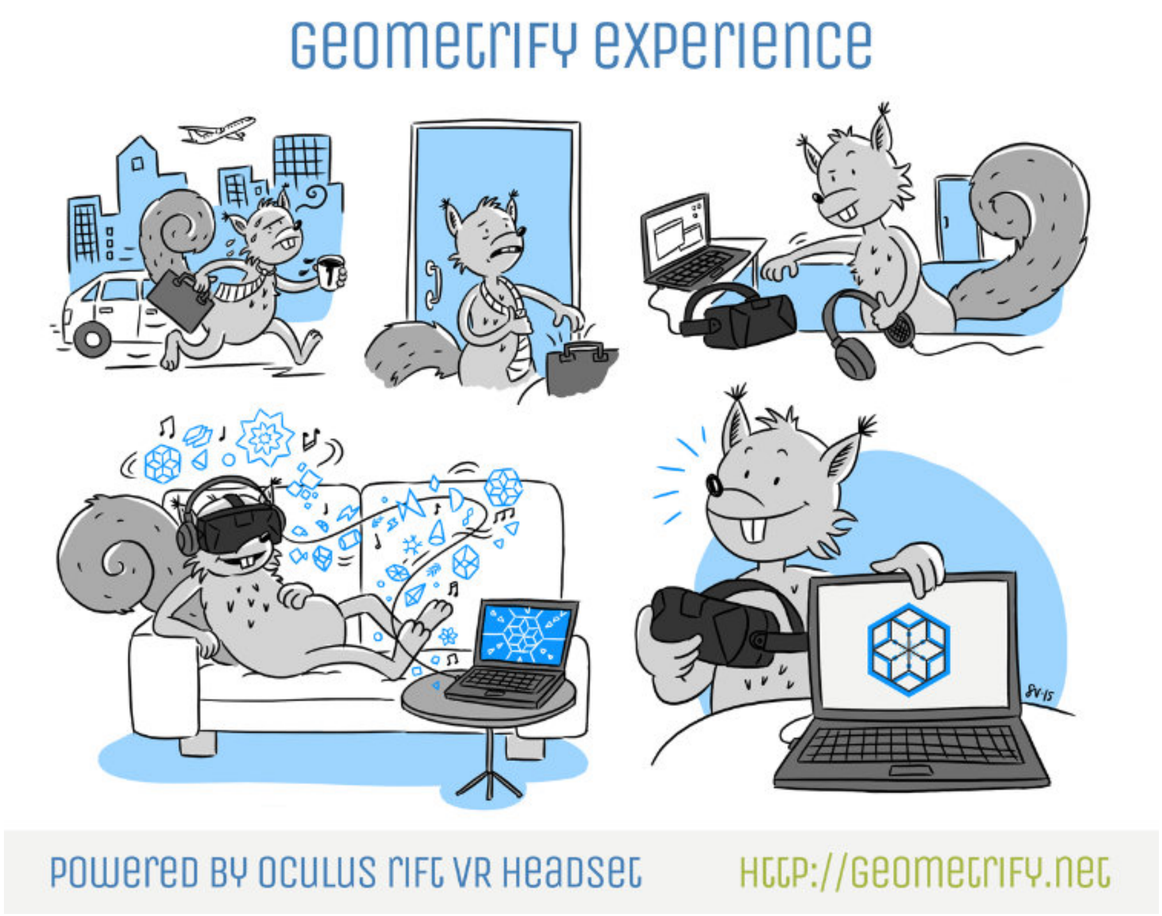
Started developing when Oculus released their first DK1 headset, leading to me develop my own 3D engine, as I really wanted to understand how a 3D engine works and to truly solve the problem I was facing. How to generate highly custom, constantly changing, dynamic fractal geometry ? Existing 3D engines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



Tekniikka ja talous 11/2014

Rentoudu virtuaalitodellisuudessa

VIRTUAALITODELLISUUS / Oculus Rift -virtuaalilasit täyttävät näkökenttäni liikkuvilla geometrisilla kuvioilla. Vastamelukuulokkeet eristävät minut muilta kuuloaistimuksilta.

Kokemuksen tekee Geometrify, joka aikoo myydä muutaman minuutin elämyspaketteja virtuaalilaseille musiikkivideoiden tapaan."Biisejä" voi ostaa muutaman euron kappalehintaa tai noin 20 euron kuukausimaksua vastaan.

Suurin osa virtuaalilasien sovelluskehittäjistä on pelintekijöitä. Geometrify on eri linjoilla. Se haluaa tarjota tuotteellaan rentoutumishetken aivoille.

–Tuote rikkoo kulttuurirajat. Ääni ja geometria ovat universaaleja, joten lokalisointeja ei juuri tarvitse tehdä, tuotteen kehittänyt **Sakari Lehtonen** kertoo.

Kuviot liikkuvat musiikin tahtiin. Uppoutumisen eli immersion tunne on voimakas. Kuviot kulkevat käyttäjää kohti ja ohi kuin lumisade autolla ajettaessa. Päätä liikuttelemalla käyttäjä voi kokea esityksen myös muista suunnista.

Ajoitus on käsityötä

Jotta käyttäjäkokemuksesta saa vaikuttavan, kuvan ja äänen on niiden oltava hyvin synkronissa keskenään.

LISÄÄ LÄPPÄRI JA KUULOKKEET. Sakari Lehtonen esittelee Oculus Riftin ensimmäistä versiota. Seuraava demo tehdään kakkosversiolle, jossa näytön tarkkuus on huomattavasti parempi.

Sovitus on käsityötä ja sitä tehdään yhdessä dj- ja vj -ammattilaisten kanssa. Konemusiikin sovittaminen on helpompaa kuin laulumusiikin, ja tekijänoikeuksien omistajiin on saatu suora yhteys.

–Haluaisimme, että muusikot innostuisivat luomaan meille sisältöjä. Mielellämme tekisin elämyksiä esimerkiksi Dream Theaterin ja Kingston Wallin musiikin pohjalle, Lehtonen kertoo.

Työtä on tähän mennessä tehty keksintökiihdyttämö ATRA Innovationsin alla, josta Geometrify erotetaan vuoden vaihteessa omaksi osuuskuntapohjaiseksi tietotyöyhtiökseen.

Tuotteen viimeistelyä varten Geometrify hakee puolen miljoonan euron rahoitusta. Tällä palkataan kaksi henkilöä lisää.

Sovellusta on esitelty useissa kansainvälisissä tapahtumissa, viimeksi Slushissa viime viikolla.

–Kokemus oli kauneinta, mitä silmieni ohi on koskaan soljunut. Tämä on varmaan niitä näkyjä, joita **William Gibsonilla** on ollut Neurovelhoa kirjoittaessaan, kertoi suomalainen pelikehittäjä Slushissa.

Geometrify tulee myyntiin kesällä, kun Oculus Rift -lasit tulevat kuluttajamarkkinoille. &

JANNE TERVOLA
@talentum.fi

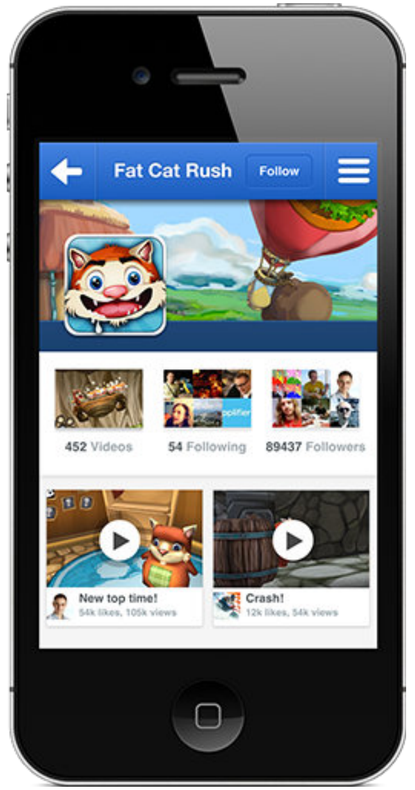
Mobile Developer

iOS, Objective-C, HTML5, Javascript

December 2011 – December 2012, 12 months

applifier

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.

iOS SEGA EVERYPLAY unity

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

DIGITAL CHOCOLATE
Seize the Minute.

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.

CentOS

APACHE

MySQL®

vmware®

Development Engineer

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

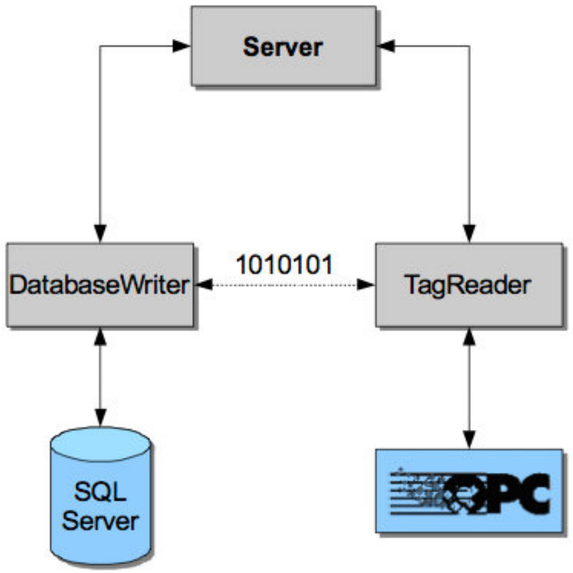
12/2006 – 04/2008, 14 months

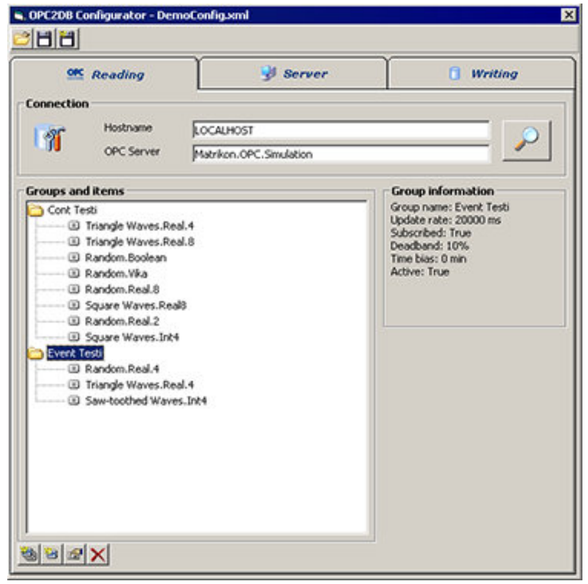
Outotec

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/

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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