

Kornél Lehőcz

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Objective

I am seeking [contract](#) work as programmer or software development consultant.

Skills and experience

- I am fluent in C++ (over 15 years of professional experience).
- I have good knowledge of image processing techniques, and am capable of designing cutting edge algorithms.
- I have a lot of experience working on 3D rendering code, engine architecture, and writing shaders for games.
- Good knowledge of OpenGL / OpenGL ES, and lots of earlier experience with Direct3D. Shading languages: HLSL, GLSL, and Cg.
- I am adept in profiling and optimizing games and applications. I know how to identify and resolve various bottlenecks on the CPU and GPU.
- Experienced with developing GPGPU applications and proficient with OpenCL (very similar to CUDA).
- Experience with the iOS SDK, and developing for the iPhone using Objective-C and C++.
- Experience with cross-platform development. (PC/console video games and Windows/Mac software apps.)
- I have a lot of experience with multi-threaded programming (POSIX threads, Windows API, and OpenMP).
- Application GUI programming experience using the Windows API (formerly Win32), wxWidgets, and Qt.
- Experience with the Adobe Photoshop and After Effects SDK-s.
- Lots of experience with the 3ds max SDK.
- I have experience working with Visual Studio, Xcode, Git, Subversion (SVN), PIX, VTune, Jira, CMake.
- I have plenty of experience in assembly programming - MC680x0, x86 (including SSE), and ARM.
- Extensive low-level programming experience on PlayStation 2, Game Boy Advance, and the Amiga.
- I also programmed in other languages, such as C, C#, Java, and Python.
- Experience with numerous libraries, including: STL, Boost, OpenCV, DirectX, and SQLite.
- Knowledge of fundamental AI programming concepts, and hands on experience with machine learning using deep neural networks.
- Other skills: TCP/IP sockets, Unix, OS X / macOS, design patterns, SQL, XML, basic HTML and CSS.

Language proficiencies

I speak Hungarian (native), English (fluent), German (professional working proficiency).

Education

I have a Programmer Mathematician BSc level degree from the University of Debrecen in Hungary.

Employment history

Scarab Labs::Principal Programmer

May 2008 – present

Uppsala, Sweden / Lüneburg, Germany / Zadar, Croatia / Budapest, Hungary

Scarab Labs is my own small business enterprise. I have developed a digital camera raw converter and photo editor, and various Adobe After Effects and Photoshop plug-ins. I wrote the majority of the code of Scarab Darkroom (± 70.000 lines of C++ code). My image-processing pipeline is world class in terms of image quality/speed. I developed numerous algorithms, including a fast, SIMD friendly, high quality demosaic algorithm, and several noise filters. I also have an iOS game side-project.

Delphi Automotive::Vision Algorithm Developer (contract)

September 2016 – March 2017

Wuppertal, Germany / remote

I supported the computer vision algorithm team working on an advanced driver assistance system (ADAS) - evaluating, improving algorithms, and optimizing them for a Texas Instruments embedded DSP.

ThyssenKrupp::Software Development Consultant (contract)

December 2014 – May 2015

Kiel, Germany / remote

Optimizing a 3D CAD data conversion process.

Atomic Motion::Senior Programmer (contract)

January 2008 – April 2008

Budapest, Hungary

I worked on the PC / Xbox 360 game Raven Squad, making improvements to an existing 3D engine. The specific tasks included implementing light space perspective shadow maps, modifying the engine to work with predicated tiling on the Xbox, and profiling, optimizing.

Stormregion::Programmer

July 2007 – November 2007

Budapest, Hungary

I was on the Codename Panzers: Cold War project. I worked on shadow rendering, video playback while loading (using XviD and FMOD), fixing bugs, profiling, and optimizing.

Eidos Hungary::Programmer

April 2006 – July 2007

Budapest, Hungary

I worked on Battlestations: Midway. I programmed visual effects, fixed bugs, and resolved frame rate issues. The game became about 15% faster thanks to my optimizations. I was also in charge of maintaining a Lightwave plug-in. Later I was involved in creating the prototype of Battlestations: Pacific. I wrote shaders and implemented new features in the 3D engine (eg. HDR rendering).

Bizarre Creations::Graphics Programmer

September 2005 – March 2006

Liverpool, UK

I worked on the company's proprietary 3D engine and on visual effects specific to The Club. I implemented HDR rendering and many other features in the engine, and was in charge of post-processing effects, such as depth of field, bloom, tone mapping, and colour curve controls.

T5 Labs::Programmer (contract)

May 2003 – July 2005

London, UK based company (worked from home)

I worked on T5 Labs's game streaming (cloud gaming) technology, mainly on the server side low latency, GPGPU video encoder. I also dealt with synchronizing threads, maintenance of an MFC based tool, and small applications for demo purposes. Eg. capturing sound output and streaming it over the network.

Invictus Games::3D Engine Programmer (contract)

October 2000 – October 2002

Debrecen, Hungary

I worked on the company's proprietary 3D engine for the PC racing game Street Legal. I wrote all Direct3D specific parts of the engine. I was also involved in developing the content pipeline. I created several plug-ins for 3ds max, including a feature packed export plug-in. Before Street Legal I did low-level programming on a PlayStation 2 project. I also worked on Invictus's earlier game INSANE. I did optimizations and improvements to its 3D engine.

Deepcore Games::AI Programmer

August 1999 – December 1999

Budapest, Hungary based company (worked mainly from home)

I helped a few friends with their start-up company by writing AI for a racing game prototype. (unpaid / royalty)

Mindmaker::Software Engineer

July 1998 – July 1999

Budapest, Hungary

I worked on the animation engine of Prody Parrot 2.0, its editor, and unit tests. The application and the in-house tools were written in C++ and used MFC. Some of my other tasks included testing, and evaluating various bug tracking systems.

Hobby

I have started learning programming at an early age with the dream of one day becoming a game programmer. I wrote my first 3D engine in pure assembly in 1995. I became involved in the Amiga [demoscene](#), and was a member of the groups Frame 18 and Scoopex. I also enjoy playing video games. One of my recent hobbies is photography. This has inspired me to take an interest in the image processing algorithms used to make the most out of digital camera images.

Softography

Scarab Darkroom (first public release in 2009, latest update 2016)

A digital camera raw file converter and photo editor, which excels with its speed and ease of use.

<http://www.scarablabs.com/scarab-darkroom>

Scarab Star Filter 1.0 - 2.0 for Adobe After Effects (released in 2011, 2012)

A plug-in for applying a star filter effect to highlights in video footage.

<http://www.scarablabs.com/star-filter-after-effects>

T-Seps 2.0 (released in 2010)

A Photoshop plug-in for making colour separations for T-shirt printing. (Windows/Mac, both 32 and 64 bits)

<http://t-biznetwork.com/t-seps/nsp/>

Scarab Star Filter 1.0 - 2.0 for Adobe Photoshop (released in 2009, 2010)

A filter plug-in for applying a star effect to highlights in an image. (Windows/Mac, both 32 and 64 bits)

<http://www.scarablabs.com/star-filter-photoshop>

Raven Squad: Operation Hidden Dagger (released in 2009)

A tactical shooter for Xbox 360 and PC.

<http://www.youtube.com/watch?v=0KS6NbuqO8M>

Codename Panzers: Cold War (released in 2009)

A real-time strategy game for the PC published by Atari.

<http://www.youtube.com/watch?v=GIAtxcmfUuc&hd=1>

Battlestations: Pacific (released in 2009)

A WWII action strategy game for Xbox 360 and PC.

<http://www.youtube.com/watch?v=23WEAyGLF50>

The Club (released in 2008)

A 3rd person shooter published by Sega for Xbox 360, PlayStation 3, and PC.

<http://www.youtube.com/watch?v=i2lauM9ue0w>

Battlestations: Midway (released in 2007)

A WWII action strategy game for Xbox 360 and PC. No. 1 hit in the UK.

http://www.youtube.com/watch?v=i8WXF7_LS1g

T5 labs “Instant Gaming” technology

A technology enabling people to play PC games on their existing set-top-boxes (cloud gaming).

<http://www.t5labs.com>

Street Legal (released in 2002)

A racing game published by Activision Value.

<http://streetlegal.invictus.hu/>

Insane (released in 2000)

An off-road racing game published by Codemasters. 'Best Off-Road Game Ever' – PC Gamer

<http://Insane.invictus.hu/>

Prody Parrot 2.0 (released in 1999)

An intelligent assistant for Windows with speech synthesis, voice recognition, and many other features.

Water Effect Demo

Entry for the August '99 programming contest on www.flipcode.com. Achieved 2nd place out of 23.

Scoopex - Pulsar (released in 1999)

An Amiga 64k intro.

<https://www.youtube.com/watch?v=QXCM6uikUkM>

Frame18 - Atmosphere (released in 1997)

An Amiga demo.

<https://www.youtube.com/watch?v=YJpLuohq9b8>

Frame18 - Kernel '97

Party invitation intro for Amiga.

Frame18 - Cyclotron (released in 1997)

An Amiga demo.

Resolution - Entropy (released in 1996)

An Amiga 40k intro. Achieved 2nd place at the Amiga intro competition at Scenest '96.

Publications

Raymond Chandler's Philip Marlowe - Hungarian publication (published in 2004)

I translated this book together with my father. It features a collection of short stories by various authors, paying homage to Raymond Chandler. Published by Indaba Bt.