

Sergei Shudler

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Profile

- 10+ years of software development experience with proven success in all aspects of the full software lifecycle including initial requirements, design, coding, testing, and maintenance.
- Extensive work experience in development of C++ applications in Windows and Linux.
- In-depth knowledge and experience in multi-threading, parallel programming, and analysis of parallel programs.
- Experience in development of 3D graphics code and GPU programming (CUDA, OpenCL).
- Excellent interpersonal skills used to great effect in building rapport with clients and colleagues alike.
- Highly motivated, committed team player with an ability to work independently.
- Thrives in highly pressurized and challenging working environments.
- Looking for a suitably challenging position as an experienced software engineer, one which will make best use of existing skills, qualifications, and experience whilst enabling further personal and professional development.

Research Experience

Feb 2013 – Present **Doctoral Researcher**, *RWTH Aachen University and Technical University of Darmstadt, Germany.*

- Explored directions for using empirical performance modeling in the analysis of parallel programs.
- Designed a framework for validating performance expectations of libraries. It allows users to uncover unexpected scalability bottlenecks and evaluate alternative library implementations.
- Devised a practical method for deriving isoefficiency functions of real-world task-based applications. It allows users to choose appropriate input sizes to maintain target efficiency as the core count increases.
- Designed and developed a replay engine for task dependency graphs that can be used to analyze the resource (e.g., memory, cache) contention overhead.
- Administered yearly seminars focused on various topics in parallel computing.
- Prepared MPI and multi-threading exercises for graduate-level courses focused on parallel programming.
- Guided and mentored bachelor and masters students.
- Collaborated with fellow graduate students and researchers in Germany, Switzerland, and the US.

Oct 2016 – **Visiting Researcher (Intern)**, *Lawrence Livermore National Laboratory, CA, USA.*

- Mar 2017
- Designed and developed a tool (*libtdg*) that creates task dependency graphs from OpenMP code.
 - Extended LLVM OpenMP runtime to generate callbacks for loop chunks.
 - Evaluated resource (e.g., memory, cache) contention overhead at a task and chunk level using *libtdg*.

Professional Experience

Nov 2011 – **Software Developer II**, *Paradigm Geophysical Ltd., Israel.*

- Jan 2013
- Paradigm Geophysical Ltd. specializes in solutions for the discovery and extraction of subsurface natural resources. Worked on a C++ and OpenGL-based 3D visualization system called 3D-Canvas.
 - Improved the responsiveness of the system and user experience by introducing a multi-threaded, progressive fetching mechanism for multi-resolution visual data.
 - Implemented a capability to correlate two instances of 3D volumetric data.
 - Developed a functionality to display semi-transparent, floating text annotations within an OpenGL 3D scene. Used Win32 to port this functionality to Windows.

- Apr 2011 – **Software Developer (part-time)**, *SagivTech Ltd.*, Israel.
- Nov 2011
- SagivTech specializes in development of GPGPU algorithms for image and signal processing applications.
 - Optimized morphological operators for a de-noising algorithm using OpenCL.
 - Helped to prepare a three day OpenCL course by converting CUDA code to OpenCL.
- Nov 2009 – **3D Graphics Developer**, *Tiltan Systems Engineering Ltd.*, Israel.
- Oct 2011
- Maintained the company's main 3D engine that was developed in C++ on top of DirectX. It was used as a rendering library for aerial and ground simulators, and designed to support vast terrains and large number of objects.
 - Developed DirectX shaders in HLSL to render terrain-embedded geometric entities and 3D objects.
 - Implemented the shadow-map algorithm to display shadows cast by 3D objects.
 - Implemented a prototype for large-scale terrain rendering based on experimental work at Zuse Institute Berlin, Germany.
 - Optimized the rendering speed of vegetation and trees by 50%.
- Jan 2004 – **C++ Programmer**, *Israeli Air Force (IAF)*, Israel.
- Aug 2009
- Worked on a distributed, Windows-based command & control system for operational units. It provided a situational awareness capability allowing multiple units to coordinate their actions in a joint mission.
 - Ported the entire system's code-base from MS Visual Studio 6 to MS Visual Studio 2005, thereby enabling developers to use the .NET Framework.
 - Developed a C++ wrapper module for a .NET-based 2D map (GIS) engine.
 - Developed a multi-threaded communication (TCP / UDP) module on top of WinSockets.
 - Collaborated with other developers to implement and test application-level communication protocols.
 - Mentored junior developers and counseled them on complex technical issues.

Education

- Feb 2013 – **Ph.D. in Computer Science**, *Technical University of Darmstadt (TU Darmstadt)*, Germany.
- Apr 2018 Advisor: Prof. Dr. Felix Wolf
(expected)
- Oct 2004 – **M.Sc. in Computer Science**, *The Hebrew University of Jerusalem*, Israel, (GPA: 92/100).
- Dec 2009 Advisor: Prof. Amnon Barak
- Oct 2000 – **B.Sc. in Computer Science**, *The Hebrew University of Jerusalem*, Israel, (GPA: 95/100,
- Aug 2003 Magna cum laude).
Top 15% of graduating class; Dean's List in the 2nd year

Technical Skills & Languages

- Programming C/C++, Python, C#, Java, HLSL, R, Bash, SQL
- Tools Git, SVN, GDB, Totalview, MS Visual Studio, Matlab
- APIs MPI, OpenMP, STL, OpenCL, CUDA, OpenGL, DirectX
- Languages English (fluent), Hebrew (native), Russian (native), German (basic proficiency)