Grigorios Anagnostopoulos

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PROFESSIONAL PROFILE

Senior software engineer with a civil engineering background with almost 10 years of experience in building software that thousands of engineers use daily. Strong management and organisational skills combined with the ability to turn an idea into a product that can improve the modelling capabilities and the daily workflows of the end user. Having an extensive experience in developing engineering desktop applications currently looking to broaden my experience to different areas of software engineering.

WORK EXPERIENCE

SENIOR SOFTWARE ENGINEER   07/2014 – present
Cubus AG (Zürich, Switzerland)

Cubus is a Swiss-based company with more than 40 years of experience in developing software for structural and geotechnical engineering, having a leading position in the Swiss civil engineering software market. I worked mainly in the development of CEDRUS (Finite Element Program for plates and buildings), STATIK (Linear-elastic analysis of general 3D frame structures) and LARIX (Geotechnical Analysis based on classic methods).

Main Achievements/Responsibilities:

- Developed BIM (Building Information Modelling) Modules and Workflows for CEDRUS and STATIK allowing the translation of data from various sources into a meaningful calculation model.
- Developed a new graphics engine for all programs based on DirectX 11/12, which made the user experience much better.
- Optimised the algorithm for the computation of settlements and soil-structure interaction in LARIX, achieving a 100x speedup.
- Participated in the development of the 3D terrain modelling and settlements calculation in LARIX.
- Supported directly the users of the programs, answering their question about the installation and usage of the programs, as well as more advanced modelling-related issues.
- Contributed to the user-manuals of the programs, by writing documentation for all the modules I developed.

Main tools used: Delphi, C++, DirectX 11/12, Python, Git.

FULL-STACK WEB DEVELOPER   01/2017 – 01/2019
Part Time Freelancer (Zürich, Switzerland/Athens, Greece)

- Developed custom e-shop solutions implementing specific business logic requirements.
- Crafted UI/UX designs seeking a seamless experience for the users, as well as the administrators of the sites.
- Streamlined the DevOps processes, accelerating the development lifecycle of bug fixes and new features.

Main tools used: Django, Node, HTML/CSS/Javascript, React, Docker/Kubernetes, AWS, Terraform.

RESEARCH ASSISTANT   03/2009 – 02/2014
ETH Zürich (Zürich, Switzerland)

- Developed a computer model for the investigation of the interactions between surface and subsurface hydrology and landslides initiation.
- Optimised complicated algorithms by developing high performance computing (HPC) implementations on multi-core (OpenMP) and (multi-)GPU (CUDA,OpenCL) systems, achieving speedups up to 250x.
- Analysed meteorological data using state-of-the art statistical methods mainly for the calibration of stochastic weather generators.

- Investigated a wide spectrum of numerical modelling techniques (Finite differences, finite elements, finite volumes, boundary elements) in order to tackle various hydrological modelling problems (surface and subsurface hydrology, runoff modelling, flood forecasting).
- Authored and co-authored research papers published in high impact scientific journals.
- Authored research proposals and implemented the corresponding deliverables for the ACQWA EU Project (Assessing Climate impacts on the Quantity and quality of WAter).
- Supervised and mentored master students throughout their final master thesis.

Main tools used: C++, Python, Numpy, Pandas, Scikit-Learn, Keras, Matlab, R, OpenMP, CUDA, OpenCL, ArcGIS.

STRUCTURAL ENGINEER   **01/2008 – 01/2009**
Diathesis Techniki (Athens, Greece)

- Executed various structural analysis projects according to Eurocodes.
- Designed and supervised the construction and reinforcement of various structures.
- Optimised the bookkeeping processes, by creating and implementing efficient IT-workflows.

GEOTECHNICAL ENGINEER   **01/2006 – 01/2007**
Greek Public Power Corporation (Athens, Greece)

- Executed several standard laboratory tests on soil samples (Attenberg Limits, Water Content determination, Direct Shear Tests, Triaxial Compression Tests).
- Executed 2-D and 3-D geotechnical analyses (excavations, retaining walls, slope stability).

EDUCATION

Certificate Program in Python for Finance   **07/2023 – present**
University of Applied Sciences of Saarbrücken (Saarbrücken, Germany)

- Studied various core topics in asset management, computational finance and algorithmic trading.
- Combined traditional finance concepts, such as Mean-Variance Portfolio Theory, Risk Parity Investing, Option Pricing by Arbitrage, or Trading based on Technical Indicators with modern approaches from Artificial Intelligence (AI), Machine Learning (ML), Deep Learning (DL), and Reinforcement Learning (RL).

PhD in Geotechnical and Environmental Engineering   **03/2009 – 02/2014**
ETH Zürich (Zürich, Switzerland)

- Specialised in Geotechnics and Hydrological modelling.
- Dissertation: Hydrological Modelling of Slope Stability. Goal of the dissertation is to develop a physically-based distributed model, continuous in space and time, in order to investigate the interactions between surface and subsurface hydrology and landslides initiation. The model uses the object-oriented features of C++ and is accelerated using the CUDA architecture.

Diploma in Civil Engineering   **09/2003 – 02/2009**
National Technical University of Athens (Athens, Greece)

- Specialised in Geotechnics and Structural Analysis.
- Diploma thesis: Assessment of reliability of climatic models based on comparisons with historical time series. Goal of the thesis was to compare the output of various climate models to temperature and precipitation observations at point and continental scale and assess their reliability for making predictions in various disciplines.

HARD SKILLS

Languages: German (C2), English (C2), French (B2), Greek (Native Speaker).
Programming: Delphi (Advanced), C++ (Advanced), Python (Advanced), OpenMP(Intermediate), CUDA/OpenCL (Intermediate), DirectX11/12 (Intermediate), Vulcan (Basic).
Data Analysis: NumPy/Pandas (Advanced), Scikit-Learn (Advanced), Keras (Intermediate).
Web: Django/Flask (Advanced), Javascript/Node.js (Intermediate), HTML/CSS (Intermediate), React (Basic), WebGL (Advanced).
DevOps: Docker (Intermediate), Kubernetes (Basic), GitLab (Intermediate), Jenkins (Basic), Terraform (Basic), AWS (Basic).
Operating Systems: Windows (Intermediate), MacOS (Advanced), Linux (Intermediate).
Engineering: Cedrus, Statik, Fagus, Larix, Sofistik, Geoslope, Plaxis, AutoCAD, Revit, ArcGIS.
Media: Photoshop/Lightroom (Advanced), Final Cut Pro (Intermediate).

SOFT SKILLS

- Project Management / Time Management.
- Problem Solving.
- Passionate about automating procedures and building efficient workflows.
- Strong communication skills.
- Critical thinking.
- Ability to work autonomously as well as in a team environment.

PUBLICATIONS & CONFERENCES

1. Anagnostopoulos, G. G., S. Fatichi, and P. Burlando, An advanced process-based distributed model for the investigation of rainfall-induced landslides: The effect of process representation and boundary conditions, Water Resources Research, 51, 2015.
2. Anagnostopoulos, G. G., and P. Burlando, An Object-oriented computational framework for the simulation of variably saturated flow in soils, using a reduced complexity model, Environmental Modelling & Software, 38, 191–202, 2012.
3. Anagnostopoulos, G. G., D. Koutsoyiannis, A. Christofides, A. Efstratiadis, and N. Mamassis, A comparison of local and aggregated climate model outputs with observed data, Hydrological Sciences Journal, 55, 1094-1110, 2010.
4. Anagnostopoulos, G. G., P. Burlando and A. Kyriakou (2011), A parallel computational framework for the simulation of variably saturated flow based on the Cellular Automata concept using CUDA architecture, American Geosciences Union Fall Meeting 2011, San Francisco.
5. Anagnostopoulos, G. G., and P. Burlando (2011), Hydrological modeling of slope stability, European Geosciences Union General Assembly, 2011, Vienna.
6. Anagnostopoulos, G. G., S. Carpentier, M. Konz, R. Fischer and P. Burlando, The role of subsurface topography and its implications on the water regime in the Urseren Valley, Switzerland, European Geosciences Union General Assembly, 2011, Vienna.
7. Anagnostopoulos, G. G., D. Koutsoyiannis, A. Efstratiadis, A. Christofides, and N. Mamassis, Credibility of climate predictions revisited, European Geosciences Union General Assembly, 2009, Vienna.
8. Burlando, P., Anagnostopoulos, G. G. and S. Fatichi, On the importance of variable soil depth and process representation in the modeling of shallow landslide initiation, American Geosciences Union Fall Meeting, 2014, San Francisco.
9. Carpentier, S., K. Markus, R. Fischer, G. Anagnostopoulos, K. Meusburger, and K. Schoeck, Geophysical imaging of shallow subsurface topography and its implication for shallow landslide susceptibility in the Urseren Valley, Switzerland, Journal of Applied Geophysics, 83, 46–56, 2012.
10. Koutsoyiannis, D., A. Christofides, A. Efstratiadis, G. G. Anagnostopoulos, and N. Mamassis, Scientific dialogue on climate: is it giving black eyes or opening closed eyes? Reply to "A black eye for the Hydrological Sciences Journal" by D. Huard, Hydrological Sciences Journal, 56, 1134-1139, 2011.

ACTIVITIES & HOBBIES

- Professional Product and Portrait Photographer, founder of Ars Lucis Photography.
- Enthusiast guitar player.
- Argentine Tango Dancer.