Markus **Gruber, MSc**

SOFTWARE ENGINEER · RESEARCHER

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Education

University of Vienna	*Vienna, Austria*
MASTER, SCIENTIFIC COMPUTING	*10/2013 - 06/2017*

- Thesis: "Experimental Studies of the Influence of Silent Data Corruption on the FT-GMRES" (`http://othes.univie.ac.at/46244/`) Supervisor: Prof. Dr. techn. Wilfried Gansterer

University of Applied Sciences Sankt Pölten	*Sankt Pölten, Austria*
BACHELOR, INDUSTRIAL SIMULATION	*09/2010 - 06/2013*

- Thesis: "Simulation of nano composite materials" Supervisor: FH-Prof. Dr. techn. Thomas Schrefl

Technical University of Vienna	*Vienna, Austria*
DIPLOMA, MATHEMATICS	*10/2005 - 03/2006*

- Without graduation.

Higher Technical School	*Sankt Pölten, Austria*
GENERAL QUALIFICATION FOR UNIVERSITY ENTRANCE	*09/1999 - 06/2004*

- Electrical engineering and industrial power electronics (major).

Work Experience

AVI-Systems	*Krems, Austria*
SOFTWARE ENGINEER & C/C++ - PROGRAMMER	*04/2017 - open*

- Projects related to road safety.
- Development of concepts for autonomous driving and computer vision.
- Application and adaption of deep learning algorithms.
- Research work on image processing and its corresponding implementation.
- Experience with Yolo (mainly used for object detection) and different tools like Keras and Tensorflow.

Solkav Alternative Energiesysteme GmbH	*Sankt Pölten, Austria*
AUTOMATION TECHNICIAN	*01/2010 - 06/2010*

- Programming and planning of controls for solar systems.
- Selection of the corresponding automation system.
- Concept creation and project works.

OK-Automation	*Sankt Pölten, Austria*
AUTOMATION TECHNICIAN	*10/2008 - 12/2009*

- Programming and planning of control systems.
- Simulation of the power plant process.
- Testing of control systems using self written models (with Simit from Siemens).
- Writing of operation manuals for the power plant process.
- Programming of visualizations.

SEIKO FLOW CONTROL	*Stockerau, Austria*
TECHNICAL DRAWER	*09/2007 - 08/2008*

- Writting of manuals and drafts for the manufacturing of flow rate measuringing pipes.
- Processing of pipeline constructions.
- Creating of drafs and manuals for consumers and manufacturing (AutoCAD 2005).
- Creating of sweat and test plans.

Frühauf	*Sankt Pölten, Austria*
AUTOMATION TECHNICIAN	*09/2006 - 08/2007*

- General control cabinet construction.
- Wiring of switch cabinet in the area of energy technology.
- Automation of hydroelectric power stations, waste incineration plants and trafo stations.

Red Cross	*Sankt Pölten, Austria*
COMMUNITY SERVICE	*10/2004 – 09/2005*

- Medical corps.

Data Structures

Languages
PROGRAMMING & SCRIPTING

- Excellent knowledge of C/C++, Python, Bash and R.

Software Engineering
C++ 11/14/17 (AND BEYOND)

- Familiar with different editors and IDEs like Qt, VIM and Visual Studio.
- Safe handling of the Standard Template (STL) and Boost-library.
- Experience with analysis and optimzation of performance critical sections.
- Experience in functional programming (fup).
- Experience in object oriented programming (oop).
- Excellent knowledge of the GNU Debugger (GDB).
- Experience in parallelization of software.

Optimization
COMPILER

- Experience with different compilers like gcc (gnu c compiler), icc (intel c compiler) and msvc (microsoft visual c compiler) as well as with code optimization through compiler flags and finding performance critical sections.

Management
GIT, GERRIT, MERCURIAL

- Very safe handling of Git and the code-review-system Gerrit.
- Experience with Mercurial for version control of software.

Documentation
DOXYGEN & MARKDOWN

- Familar with different documentation tools like Doxygen and Markdown.
- Experience in UML (Unified Modeling Language).

Visualization
GUIs

- Excellent knowledge of Qt5/QML for realization of user-interfaces from mobil devices and desktop systems.
- Development of rudimentary and advanced graphical interfaces.

Data Processing

High Performance Computing
DISTRIBUTED & SHAREDMEMORY

- Familar with different APIs in high performance computing (HPC).
- Knowledge of MPI, OpenMP, TBB, Cilk, OpenCL, CUDA.
- SIMD programming up to SSE/AVX/AVX2 and programming on GPUs.

Machine Learning
R & PHYTON

- Knowledge of data mining and pattern recognition methods (support vector machines, ensemble methods, dimension reduction, cluster analysis,..).
- Combinatorics and probability theory.
- A lot of work experience with OpenCV (Open Source Computer Vision Library).

Deep Learning
KERAS, TENSORFLOW, PYTORCH, CAFFEE, CNTK, YOLO

- Experience with different deep learning libraries for classification and object detection.
- Training and optimization of different Deep Neural Networks (DNNs).
- Experience with the export of DNNs and as well further processing.
- Proficient in solving problems related to computer vision and deep learning.

Numerics
MATLAB/OCTAVE

- Excellent knowledge of solving differential equation systems.
- Good knowledge of MPI and LAPACK/BLAS.
- Experienced in using different libraries like BLAS, cuBlas, Magma.

System Administration

Aptitude/Systemctl

- Excellent knowledge of Debian based systems, including package management.
- Command line usage (for the creation of scripts), updates & monitoring.

Databases

SQL

- Good knowledge of SQL databases.
- Experienced in the creation of databases.

Digital skills

Tools	Word processing (word), spreadsheets (excel), presentations (power point).
General	Literature research, digital media, operating systems.

Languages

German	Native language.
English	Fluent (written & spoken).

Communication skills

Communication technique	Good.
Presentation technique	Good.
Networking skills	Excellent.
Conflict competence	Excellent.

Organizational and managerial talent

Teamwork	Enjoy working in a team and interdisciplinary.
Leadership qualities	Like allocation of employees and of different jobs.
Way of working	Structured and clear.
Resilience	Resistant to stress even in demanding situations.

Interests

Sports	Snowboarding, swimming, running, biking.
Leisure	Reading (mainly specialist literature), cinema, hiking, travelling.