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Curriculum Vitae

Work Experience

Software Development (Employee)

05.2006 - ...

• **Software Engineer/Researcher, Know-Center, Graz**

- Technical lead in commercial and academic projects with Shell, Brockhaus, Mendeley, AutomationX and others.
- Responsible for the design and implementation of frameworks for natural language processing, information extraction, vectorization, lightweight map/reduce and information visualization to be reused in research and commercial projects of the company.
- Research and academic publications in the fields of computer graphics, information visualization, machine learning, high performance computing and plagiarism detection. See section “Academic Publications”.
- Participation in various scientific challenges like PAN or INEX.
- Responsible for the implementation of experimental projects using technologies such as stereoscopic 3D or RFID.
- Please refer to the project portfolio for details on the various projects.

07.2005 - 09.2005

• **Software Engineer, Magna Steyer - Saab QA, Graz**

- Internship.
- Implemented various utilities for reporting in Excel and Access.
- Implemented an interface between production line barcode scanners and the internal database for generating statistics.

07.2004 - 09.2005

• **Software Engineer, Magna Steyer - Power Train, Graz**

- Internship.
- Implemented various utilities for reporting in Excel and Access as well as custom GUIs for data entry.

06.2003 - 10.2003

• **Software Engineer, Red Cross, Graz**

- Alternate civilian service (“Zivildienst”)
- Implemented a web store for the central warehouse of the styrian Red Cross.
- The webstore facilitated the process of ordering new supplies for the various departments throughout Styria.

Work Experience (continued)

Software Development (Contracting)

- 08.2010 - ...
- **Software Engineer, Contracting with Bel3ax Software**
 - Took over development and maintainance of the code base.
 - Implemented DRM schema for the korean market.
 - Improved overall performance and fixed bugs in the original code base.
- 05.2010-06.2010
- **Software Engineer, Contracting with Audiosurf LLC**
 - Prototype for the game “Audiosurf” for the Android platform, ported from “Audiosurf” from Zune.
 - Feasability analysis.
 - Complete OpenGL ES 2.0 pipeline.
 - Complete audio processing pipeline.
 - Project did not leave the prototype stage due to hardware and time constraints.

Software Development (Open Source)

- 03.2010 - ...
- **Project Lead, Libgdx (<http://code.google.com/p/libgdx>)**
 - Cross-platform game development framework for Windows/Linux/Mac/Android.
 - Written in Java/C/C++, modules for 2d/3d graphics, audio i/o, user i/o, file i/o and 2D physics for platform agnostic game programming.
 - Allows for rapid prototyping on the desktop and seamless deployment to Android.
- 03.2009 - 05.2009
- **Project Lead, Quantum (<http://code.google.com/p/quantum-game/>)** A real-time strategy game written in Java primarily focused on multiplayer games.

Teaching

- 03.2006 - 07.2006
- **Teaching Assistant, Compiler Engineering, TU Graz**
 - Created a C compiler for a subset of C to be extended by student groups in various assignments.
 - Held lectures on lexing/parsing, AST creation and processing, intermediate language representation and code generation.
 - Support for student groups in form of question hours.
 - Graded the student groups based on their hand-ins.
 - For more information on the C compiler please refer to the project portfolio.

Skills

- **Note:** these are technologies i used over the course of my career. This list is by no means comprehensive. Some of these technologies i last used years ago so a refresher might be necessary.
- **Programming Languages:** x86, C, C++, Pascal, Java, Beanshell, C#, Javascript, Python, Php, QuickBasic, Visual Basic, Eiffel, Matlab
- **Platforms:** Windows, Linux/Unix, Android, Maemo, J2SE
- **Development Tools:** Subversion, CVS, Maven, Continuum, Archiva, Eclipse, Visual Studio, Aptana, GCC, GDB, Bash
- **C/C++ APIs/Frameworks:** Posix (pthreads, Berkely Sockets), STL, Boost, WxWidgets, Win32 API, JNI, Cuda, BLAS, OpenGL (ES), DirectX, OpenAL, Libmad, Libmpg, Libvorbis, Tremor, Box2D, Bullet
- **Java APIs/Frameworks:** Xerces, StAX, JSON, JAXB, Protocol Buffers, Hibernate, JUnit, TestNG, JDBC, Servlets, Jena, Sesame, Lucene, Swing/Awt, Jogl, Weka, Mallet, Libsvm, Liblinear
- **Matlab:** Neural Network toolbox, Matlab Toolbox for Dimensionality Reduction,
- **Databases:** MySQL, Postgres, MongoDB, CouchDB
- **Web Technologies:** HTML, XHTML, CSS, JQuery, Google Web Toolkit, Apache, Tomcat
- **Machine learning:** Knowledge in supervised and unsupervised learning. Experience with naive bayes, hidden Markov models, maximum entropy models, support vector machines, (growing, bisecting) K-Means clustering, hierarchical agglomerative clustering, Spectral clustering, Hebb learning, vector quantization and dimensionality reduction. Experience with the evaluation of machine learning approaches as well as feature engineering.
- **Natural Language Processing:** Experience with multi-language natural language processing, from tokenization to stemming, normalization, sentence detection and part of speech tagging and spelling correction.
- **Information Extraction:** Experience with named entity detection, classification and disambiguation as well as text summarization.
- **Information Retrieval:** Experience with inverted indices and their creation, weighting functions like TFIDF or BM25 and query expansion.

List of Publications

- [Granitzer et al., 2008a] Granitzer, M., Seifert, C., and Zechner, M. (2008a). Context resolution strategies for automatic wikipedia linking. In *INEX 2008 pre-proceedings, Dagstuhl, Germany*.
- [Granitzer et al., 2009] Granitzer, M., Seifert, C., and Zechner, M. (2009). Context based wikipedia linking. In *Advances in Focused Retrieval 7th International Workshop of the Initiative for the Evaluation of XML Retrieval (INEX 2008)*.
- [Granitzer et al., 2008b] Granitzer, M., Zechner, M., Seifert, C., et al. (2008b). Evaluation of automatic linking strategies for wikipedia pages. In *Proceedings of the IADIS WWW/Internet Conference 2008*.
- [Kienreich et al., 2007] Kienreich, W., Zechner, M., and Sabol, V. (2007). Comprehensive astronomical visualization for a multimedia encyclopedia. In *3rd International Symposium of Knowledge and Argument Visualization. Proceedings of IV07, 11th International Conference Information Visualisation*.

List of Publications (continued)

- [Muhr et al., 2009] Muhr, M., Zechner, M., Kern, R., and Granitzer, M. (2009).
External and intrinsic plagiarism detection using vector space models.
In *Proceedings of the SEPLN'09 Workshop on Uncovering Plagiarism, Authorship and Social Software Misuse*.
- [Zechner and Granitzer., 2009] Zechner, M. and Granitzer., M. (2009).
Accelerating k-means on the graphics processor via cuda.
In *Proceedings of the 2009 First International Conference on Intensive Applications and Services (INTENSIVE 2009)*.
- [Zechner and Granitzer, 2009a] Zechner, M. and Granitzer, M. (2009a).
A competitive learning approach to instance selection for support vector machines.
In *Proceedings of the 3rd International Conference on Knowledge Science, Engineering and Management*.
- [Zechner and Granitzer, 2009b] Zechner, M. and Granitzer, M. (2009b).
K-means on the graphics processor: Design and experimental analysis.
International Journal on Advances in Systems and Measurements, Volume 2.
- [Zechner and Kienreich, 2007] Zechner, M. and Kienreich, W. (2007).
Scalable realtime glyph rendering on consumer level graphics hardware: A hybrid approach.
In *Proceedings of VIIP07 - 7th IASTED Conference on Visualization, Imaging and Image Processing*.

Education

- 09.2003 - ... • Technical University Graz, Software Engineering, BSc program
- 09.1994 - 07.2002 • Secondary School Stiftsgymnasium Rein, school leaving examination passed with distinction
- 09.1990 - 07.1994 • Elementry School Deutschfeistritz