Ing. David Navrkal

Curriculum vitae

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Education

2009–2014 **Bachelor's degree**, *Brno University of Technology, Faculty of Information Technology*, Brno.
University provides general IT knowledge, focused on programming mainly in C/C++.

2015–2017 **Master's degree**, *Zlin Tomas Bata University, Faculty of Applied Informatics*, Brno.
The study was done in combined form alongside working.

Bachelors thesis

title *Conversion of Models of Regular Languages*

supervisor Ing. Zbyněk Křivka, Ph.D.

description Thesis deals with how to didactically demonstrate models of regular languages focusing on their mutual conversions. Application was programmed in C++ using graphical library Qt 5.

Diploma thesis

title *Conversion of Models of Context-Free Languages*

supervisor doc. Ing. Roman Senkerik, Ph.D.

description It extends upon my Bachelor's thesis about support of context-free language model conversions and is also written in C++ using graphical library Qt 5.

Experience

January 2017–Present **UWP, C#, C++/CX Application developer**, *Master Internet*, Brno.
Responsibility for developing and maintaining app *Baby Monitor* (link) in small team of 2 developers. The application streams video and audio. The product is designed for Universal Windows Platform (UWP), so it runs on every device, where Windows 10 is installed. This product is written mainly in C# and some performance critical parts are developped in C++/CX. This job also included architectural proposal and development of new generation software *Baby monitor 2* based on WebRTC and MQTT. Because both applications are multi-platform, it also included cooperation with other teams maintaining Android and IOS versions. This job required ability to write general and maintainable code to match changing requirements and reusing previously written code. Part of implementing new features was precise documentation. TCP, UDP, REST and MQTT are used for communication. Version control was maintained by Git. IDE Visual Studio 2017 and other tools like Gitlab, Redmine, Slack were also used.

November 2014–October 2016 **C++ developer**, *AVG*, Brno.

Responsible for developing and maintaining product AVG Remote Administration in small team of 2 developers. (Link to product page.) The product is entirely written in C++ and for GUI is used MFC. The product consists of 2 main applications:

- Admin Server, which includes database and communicating with AVG Anti-viruses and with Admin Console. Supported databases are Firebird, MS SQL, MySql and Oracle.
- Admin Console, which represents UI to Admin server.

Another applications are:

- Network Installer, which performs remote installation of AVG Anti-viruses.
- Server monitor, which is small app controling Admin Server Service.
- Server Wizard, which deploys and upgrades database.

I am participating on every component, but mainly on Network Installer which includes using WMI technology and bat and PowerShell scripts. At work we are working in Agile methodology including web tools like JIRA, Confluence and Stash. As version control system we are using Git and development IDE Visual Studio. Minor work also includes developing tool written in C# which analyzes user clicks and stores them in MySql.

January 2013–October 2014 **Linux Administrator**, *Unify*, Brno.

Remote administration and monitoring of multiple Linux servers in VMware. Working with command line, scripting in Bash. Managing JIRA and Confluence.
Detailed achievements:

- Settings Linux antivirus to scan official production of software for Linux phones.
  - Linux antivirus does not provide direct output if files are safe or not, either exist status, so log files was needed to be parsed and analyzed.
- Transition from Clearcase to Git:
  - My role was transition from building on Red Hat Enterprise Linux 3 (RHEL3) to Unbuntu 12.04 LTS
    - Software for phones was build on RHEL3, but Git is not working here, so it needs to modify source codes, building scripts, makefiles and enviroment in Ubuntu to get it work.

Languages

Czech	Mother tongue
English	Fluent
Russian	Basics
German	Basics

Programming languages

C/C++	★★★★★
Qt	★★★★★
C#	★★★★☆
Powershell	★★★☆☆
Bash	★★★☆☆
Java	★★★☆☆
LaTeX	★★☆☆☆
HTML/CSS	★★☆☆☆
Python	★☆☆☆☆

(This CV and Diploma thesis are written in LaTeX)

OS preferences

Linux	★★★★★
Windows	★★★★★
Unix	★★★☆☆
Mac	★☆☆☆☆

(My favorite distributions are Ubuntu and Debian)

Code editors preferences

Visual Studio	★★★★★
Geany	★★★★★
Vim	★★★☆☆
Eclipse	★★★☆☆
Netbeams	★★★☆☆
Notepad++	★★☆☆☆
Powershell ISE	★☆☆☆☆

Projects

C++, Qt

- *Regular convertor (2014) - Link to sources*
  - *Educational application for conversion finite automata and regular expression.*
- *Contex-free convertor (2016) - Link to sources*
  - *Basicaly it is Regular convertor extended of models of context-free languages.*
- *Game draughts (2013)*
  - *Graphical application for playing draughts with human player or with computer.*
  - *Network application client-server.*

C++, wxWidgets

- *Game pong - written in C++ and GUI in wxWidgets (2015) - Link to sources*

C++

- *Discrete simulator (2012)*
  - *Application also offers support infrastructure for discrete modelling of queueing systems.*
- *24h challenge to create DNS cache optimalized for high performance (2016) - Link to sources*
  - *Application uses custom implementation of double linked queue for keep order of dns records (to free most oldest records) with direct access to elements and unordered map (hash table) from standard library. (Insert, update and search operations are done in constant time!)*

C
- *Series of homeworks of programming NVIDIA graphics card written in CUDA using C. (2016) Link to sources*
- *Series of C homeworks at school in Zlin (2016) - Link to sources*
- *Graph analyser (2012)*
  - *Text program which analyse undirected graphs and print their properties.*
  - *Input is loaded in format called Trivial Graph Format (TGF).*
- *TCP scaner (2012)*
  - *Network program which scans selected TCP ports on selected computers.*
  - *Application uses BSD sockets.*
- *Interpreter for language Lua (2011)*
  - *Interpreter consist of lexical parser, syntactic parser, expression parser and interpreter.*

Java
- *Petri net simulator (2012)*
  - *Includes editor of Petri net and performing simulation.*
  - *Network application client/server.*

C#
- *SQM Analyzer - Enxtend and maintain at AVG (2016)*
  - *Gets text files with data how customers are using AVG Remote Administraton, and feads with this data MySql db.*
  - *In GUI (Winforms) shows graphs and tables with structuded data.*
- *Graphic database application - school project (2013)*

python, wxWidgets
- *Simple calculator - School project in Zlin (2016) - Link to sources*

LaTeX
- *This CV (2016) - Link to sources*

Computer skills

Programs: Vim, top, screen, ps, make, ant, sed, awk, putty, ssh, Jenkins, Nagios, Byobu, Git, Clearcase, Qt Creator, NetBeans, World, Excel, Outlook, Open Office, LaTeX.

OS: Linux (Debian, Ubuntu) - expert, Windows XP/7 - advanced user.

Interests

Technical: New technologies, Linux, programming, Raspberry Pi, Android, understanding how technologies works, disassembling thinks, computer games.

Non-technical: Cooking, trips in nature, mountain bike, meeting with friend in pub, board games, movies, gardening, girlfriend, personal development, popular science, listening radio, reading news, travelling.