



Martin Kodovský
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<https://github.com/nitrram>
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Martin Kodovský

Researcher & Developer

About Me I am an enthusiastic researcher & programmer, who is passionate about high performance computing and about general big data processing.

During my studies, my theses focused at passing data through cellular networks, which I've been partially interested ever since. It's also been quiet close to mobile phone development, which I put a major effort on behalf of my professional career into. And yet, most of the thoughts of mine upon working on things, are tackling computational performance on embedded devices and possibilities of how to optimize things in that manner.

Nowadays I'm working in the field of machine learning. And I try to take in as much of my interest as possible into it. The big deal of hobby of mine today is to create an accurate and fast enough RNN-T model and its decoder for embedded devices, which combines theoretical machine learning skills with the application of computationally inexpensive algorithms and using some low-level programming techniques. The prototype can be found on my personal space on *GitHub*.

Through my career I also participated on some open-source projects, e.g. RxCpp maintained mostly by Microsoft Open Technologies' affiliates.

Education

2010 - 2012, Tomáš Baťa University in Zlín

M.S. in Applied Computer Science

Dip.: Data transmission via Mobile Network Carrier Communication Channels

2005 - 2009, Palacký University Olomouc

B.S. in Computer Science

FT: Interconnection of Information System and GSM

Experience

January 2023 - present, *Researcher & Developer, Phonexia*

Being a part of research team with focus on speaker & language identification and speaker diarization

Detailed achievements:

- sped up agglomerative hierarchical clustering (AHC) on backend of speaker identification (SID) evaluation, using GPU offloading (Python/OpenCL)
- was in charge of transcoding various audio types of data for training, test and cross-evaluation purposes (ffmpeg, bash, Python, C++, partially Rust)
- reporting and tuning hyperparameters of existing voice-activity-detection (VAD), SID and various other neural-network systems

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April 2018 - December 2022, *Senior programmer, Seznam*

Being a part of *sBrowser* team

Detailed achievements:

- created custom ASR (STT) system based on RNN-T for low latency and low computational resources environments
- created Voice Assistant (Android), featured:
 - keyword spotting
 - intent recognizer (regex based only)
 - integration of MQTT
 - intergration of 3rd party dialogue system
- started CI & automatization of the desktop/mobile the main team projects within comapny's GitLab and datacentre services
- done several modifications within Chromium (core of sBrowser desktop project)

Jan 2016 - March 2018, *Programmer, Seznam*

Being a part of *Mapy* (mobile) team

Detailed achievements:

- porting routeserver to frontend so that offline navigation is feasible
- contribution on RxCpp library, while enhancing the shared tier of the Mapy app
- minor pieces of enhancement upon synchronization of user data

August 2013 - December 2015, *Android Programmer, Seznam*

Being a part of *mobile* division

Detailed achievements:

- programming and maintaining Email, Novinky, Stream app
- replaced the obsolete player at Stream app for Android
- customizing UI for nVidia Shield

October 2012 - July 2013, *Programmer, Altair Software*

Programmer of .NET based information system for automotive industry.

Detailed achievements:

- programming and customizing system for predictive maintenance of injection molding machines
- visualizing and reports from a custom made system's database regarding the machines usage statistics

January 2009 - December 2012, *Axapta Programmer, Prodware*

Programmer of customizations upon Microsoft Dynamics' products

Detailed achievements:

- As a part of a promoting campaign for our customers, I developed a mobile application for Android to detect business card, recognize text within and stream video selected based upon the text over the card.

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Communication Skills

2022, *Oral Presentation, Seznam DevCon*

Presented research we conducted for creation of our custom ASR system.

Software Development Skills

Programming

- C/C++
- Kotlin
- Rust
- Bash
- Java
- Python
- OpenCL

Computer Software

- Linux
- Git
- GNU/GCC
- Onnx Runtime
- Emacs
- Gitlab
- LLVM/Clang
- ffmpeg
- Android
- CMake
- pytorch

Interests

Professional

Optimizing algorithms, GPGPU, Open source contribution

Personal

Motorcycles, popular theoretical physics, PC building and tweaking, running