Radu Motrescu

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EDUCATION

- **Faculty of Mathematics and Computer Science, Transilvania University** — Brasov, Romania
  Bachelor of Science in Computer Science — *Oct. 2015 – June. 2018*

PROFESSIONAL EXPERIENCE

- **SoundStack** — Remote
  Senior Software Engineer — *January 2022 - Current*
  - **Distributed Audio Server**: Microservice based distributed backend server that is delivering audio podcasts and livestreams to tens of thousands of listeners every day. Written entirely from scratch, working in a very agile 3-man team, working entirely in Linux based distributions.
  - **Tech Stack**: The projects use a mix of C++17 and Python 3.10, using gRPC for communication.
    * **C++ Projects**: Both projects use Conan as package manager with CMake as build system. GoogleTest for unit testing.
      - **HTTP Server**: Boost::Beast and Boost::Asio for HTTP network communication and async multithreading for high concurrent listeners. gRPC communication with Python microservices. Prometheus C++ Client for metrics and monitoring.
      - **Audio Segmenter**: Audio file and livestream processor, which segments the audio stream at specific timestamps. Written from scratch and on top of Ffmpeg libraries. Its able to do stream remuxing and transcoding, while also analyising the stream, doing silence detection and loudness normalization on the fly.
    * **Python Projects**: Designed for ad insertion, ad splicing and impression reporting. They use anyio, aiohttp and boto3 libraries for async and high throughput request handling. Prometheus Python Client for metrics and monitoring.
    * **Monitoring**: Did Graphana and Prometheus initial setup, and built the relevant Graphana boards for monitoring.
    * **CI/CD**: Docker and podman with Jenkins pipelines.
    * **Kubernetes**: Did initial Kubernetes proof-of-concept, validation and deployment for the entire project. Now using fluentbit for image and command syncing, and Ansible for initial host deployment.
  - **Responsabilities**: I am in charge of maintaining all projects in a 2-man dev team. The company architect did the initial architecture, and we have to extend and maintain the microservices, while keeping availability and performance as top priorities. We run the

- **Endava** — Brasov, Romania
  Senior Software Engineer — *June 2021 - June 2022*
  - **Webex**: Webex is the leading enterprise solution for video conferencing and online meetings. I was in charge of maintaing and developing new shared content features, like sharing files hosted in external services such as DropBox and Google Drive, using C++17 and Qt framework. This had both UI and backend developement involved.
  - **Unit testing**: Added and maintained unit tests using the Catch2 C++ unit testing framework.

- **Siemens Industry Software** — Brasov, Romania
  Software Engineer — *June 2018 - June 2021*
  - **Simcenter3D**: Simcenter3D is one of the largest CAE applications currently on the market. Worked on the Noise and Vibrations side of the application, with most of the time split between designing UI elements (using a proprietary framework) and writing code that supports the communication between the UI elements and solvers, through the use of both open source and proprietary files and file formats. All of this was done using modern C++ standards.
  - **Unit testing and automated testing**: Kept the quality of the application in check during development with unit tests and automated tests. Used modern unit testing practices like Test Driven Development when applicable. Developed unit testing tools and upgraded existing ones when new needs appeared.
  - **Teamwork**: Aided the team's engineers and upper management in understanding development best practices and current limitations of the application from a developer's perspective.
  - **Project management methodologies**: Worked for one and a half year in a Waterfall environment, going through all the project phases. Later the team changed the approach to an Agile-Scrum style, which meant getting formal training in Agile practices, and contributing to designing different processes that would help the team. In this period I also took on the role of Scrum Master for certain events, when given the chance.

- **Tools**: Worked on different internal tools that were used for specific tasks that were not part of the shipped product. These usually were Python scripts and small applications that did internal file conversions.
- **Linux**: While most of the work of the application was done on the Windows OS, sometimes Linux specific tasks appeared, usually C++ compatibility fixes or fixing automated and unit tests.
- **Application performance improvements**: Worked on multiple tasks that required application benchmarking, usually resulting in doing code changes that improved the performance of certain operations from 10% to 90%, while also keeping the code and functionality future proof.

PROGRAMMING SKILLS

- **Languages**: C++, Python   **Version Control Systems**: Git/GitLab, Mercurial, Perforce