Martin Beneš

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Experience

Since 09 2021	**Research Assistant,** Security and Privacy Lab, Rainer Böhme **UNCOVER**: EU project development of steganalysis framework. End users LEAs. Working with confidential information. **jpeglib** [Python, C]: Python envelope for C library libjpeg. **conseal** [Python]: Python package with simulators of modern steganographic algorithms. **Steganographic demo** [C++]: Prototype of real-time steganography in video stream, presented at events InDay Students and LNDF.
11 2020 – 06 2021	**QA Engineer,** AB TaxiCaller Nordic **Driver app** [React.js]: Tester, iterative development. **Scrum master** [Jira]: Sprint planning. **QA engineer** [Node.js, Jenkins]: Integration and deployment testing.
06 – 09 2020	**Data Engineer,** M/F Ratio of current excess mortality, Krzysztof Bartoszek **covid19sweden, covid19czechia, covid19poland, eurostat_deaths** [Python]: Automated data collection and cleansing. **waybackmachine** [Python]: Fetching historical snapshots of a page from archive.org.
04 – 05, 08 – 09 2020	**Core-team Contributor,** COVID-19 Data Hub [10.21105/joss.02376], Emanuele Guidotti **Data Hub** [R]: Covid-19 data collection and cleaning. **covid19dh** [Python]: Python envelope of the data hub.
09 2019 – 03 2020	**Backend Developer,** AB TaxiCaller Nordic **Revenu Quebec certification** [Java/Android]: Certification of sales-recording system for mandatory billing. **BloodHub integration** [Node.js]: Integration of blood delivery system. **API definition** [OpenAPI]: JSON schema for API - Jackson, TypeScript middleware request checker, documentation. **Maps** [Python, MariaDB, Node.js]: OpenStreetMap solution: Map tiles server, geocoding (Pelias), address interpolation.
01 2017 – 01 2019	**Software Developer,** Artisys s.r.o. **Air-traffic control display panel** [C++/Qt5]: Display panel for visualizing the radar targets.

Education

Since 10 2021	**PhD., Computer Science,** University of Innsbruck <GPU 3.82> **Paper** {IH&MMSec 2022}: Know Your Library: How the libjpeg Version Affects Compression and Decompression Results. **Paper** {EUSIPCO 2022}: The Effect of the JPEG Implementation on the Cover-source Mismatch Error in Image Steganalysis. **Reviewer** for IEEE Transactions on Information Forensics and Security. **Summer school** Privacy-Preserving Maching Learning (IACR). **Summer school** Steganography and Steganalysis. *Lecturer. Team lead in CTF challenge.* **Paper** {WIFS 2023}: JPEG Steganalysis Using Leaked Cover Thumbnail. *Carried out on Vienna Scientific Cluster (#301).* **Reviewer** for IEEE Signal Processing Letters. **Reviewer** for IEEE Transactions on Dependable and Secure Computing. **Digital Magic Ink**: Steganography workshops during event Tag der MIP and at Gymnázium Brno-Řečkovice. *Lecturer.* **Reviewer** for ESORICS. **Paper** {EURASIP 2024}: Cover-source Mismatch in Steganalysis: Systematic Review. *In review.* **Paper** {IH&MMSec 2024}: Exploring Diffusion-inspired Pixel Predictors for WS Steganalysis. *Accepted.*
06 2021	**MSc., Statistics and Machine Learning,** Linköping University <GPU 3.09> **Master thesis** [Python] {NordicMathCovid Oslo Workshop 2023}: HMM Modelling of the Spread of the SARS-CoV-2. <A> **Research project** [Python]: Covid-19 regional comparison. <A> **Teacher assistant** [R]: Advanced R Programming, Computational Statistics, Machine Learning.
08 2019	**Bc., Information Technology,** Brno University of Technology <GPU 3.11> **Bachelor thesis Counting People Using PIR Sensor** [Arduino/C++, Python]: Cooperate research of FHV / FIT BUT. **Erasmus** Computer Science, FH Vorarlberg. <GPA 3.68>
06 2016	**Gymnázium Brno-Řečkovice**. High school, final *maturita* exam: Czech, Math, IT. <cum laude>

Skills

Data science	Statistical and probabilistic modelling · Deep learning · Computer vision · Forecasting · Data mining, analysis and visualization MLOps · Data engineering · SQL (MySQL, PostgreSQL, SQLite) · NoSQL (MongoDb, Redis) · Database modelling (UML) Signal processing (coding) · Statistical testing · Stochastic optimization · Continuous and discrete simulation
Programming	Python · R · C/C++ · Parallel programming · Acceleration (GPU, multi-GPU, JIT) · HPC (Slurm) Networking · Web (Node.js, React.js, web scraping) · IoT (Arduino, Raspberry PI) · Hardware (FPGA/VHDL, x86, SSE/AVX) Git · Bash · Cloud computing (AWS, Docker) · Scrum/Jira
Computer security	Steganography and steganalysis · Digital forensics · Cryptography
Audiovisual skills	TeX/Tikz · Video editting (DaVinci, Vegas) · Sound processing (Cubase, Audacity) · Graphics (CorelDraw/Inkscape, Adobe Photoshop)
Languages	Czech/Slovak (mother tongue) · English (C1) · Polish (~B2) · Russian (~B2) · German (B1) · Swedish (B1) · French (~A2)
Other skills	Academic research · Academic and technical writing · Presentation skills · Teaching and mentoring · Intercultural communication Responsibility · Time management · Problem solving · Adaptivity · Creativity · Social skills · Teamwork Driving license B (car) · Ultralight backpacking · Bass guitar

Miscellaneous projects and work

01 2023	**Meeting organization**: Organization of a major EU project meeting with 50 attendants.
08 2022	**Jura jede** [D3.js/jQuery]: Data dashboard.
03 2021, 10 2021	**Externist**, University of Neuchâtel: Database merging.
11 2020	**Externist**, CEVRE Consultants, s.r.o.: Facility documentation for BREEAM certification.
09 2018 – 12 2019	**Lecturer**, Top Learning s.r.o.: Individual teaching – math, physics. Preparing study materials.
09 2013 – 03 2018	**Sound Engineer**, ZiveOzvuceni.cz: Installation and configuration of sound systems on various live events.
06 – 09 2018	**Manager**, I Love Sugar: Work & Travel J1 program in USA. Management of stock and organization of employees.
08 2016/17/18	**ViceManager**, Camping Transit, GenAgro a.s.: Management of temporary camping for grand prix event. Organization of employees.