



# Bernd Malle

SW Developer



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## About me

Bernd is an enthusiastic Software guy interested in combining client-side (Web) development with algorithmic problem solving.

He is currently applying his skills to creating Lemontiger, a next generation team collaboration tool fueled by client-side, graph-based resource recommenders.

Although Bernd left his academic work for entrepreneurial challenges, he retained a scientific mind-set and sound, experimental approach.

## Skills

Long term trend extrapolation

Strategic thinking

Client-side development

Graph implementation

Algorithmic thinking

SW Architecture

Data Science

Negotiation & communication

(\*)[The skill scale is from 0 (Fundamental Awareness) to 6 (Expert).]

## Core beliefs & Interests

- Client-side ML. Highly-centralized data infrastructures will subside to swarms of client nodes predicting on overlapping knowledge bases ("*local spheres*"), exchanging insights about their conclusions when needed.
- Scalability & Privacy. CS-ML will enable us to build networks that scale at almost no cost to the provider & make use of highly-personalized data without transmitting them, thus solving the KI vs. Privacy conundrum.
- Context over mass. Modern AI is hopelessly incapable of understanding simple snippets like "*At the airport. Will be back in 2 weeks*" while knowing the context (sender is *wife* vs. *boss*) triggers a slew of useful inferential data. Thus millions of samples can be replaced by a small contextual knowledge graph.
- Distributed startup. Given the above ideas & a micro-service oriented architecture, the next generation of startups will be able to operate in very small teams distributed globally, with independent development cycles.
- Current software interests. Front-end frameworks, data-driven SVGs, compiling from server-side languages (C++, Rust) to Webassembly.
- Current theoretical interests. Graph theory (partitioning, parallel centralities), embeddings (words, graphs, everything), context-based ML, split testing & metrics-driven development.

## Experience

- 2016-2018 Member of the Austrian KIRAS funded project *Darknet*  
2015-2018 IT Security Researcher @ (SBA) Research GmbH, Vienna, Austria  
2016-2017 Supervised 2 BSc. theses and 1 MSc. project  
2015-2016 Project Graphinius: An interactive graph exploration platform  
2014-2015 Project iKnodis: Graph extraction from medical images  
2014-2018 Member of the HCI-KDD research group at Medical University Graz  
2009-2014 Independent Software / Web developer on a contractual basis  
2008-2009 Programmer at Siemens Medical, Graz, Austria.

## Education

- 2016-2018 Ph.D. candidate in Computer Science TU Graz  
*Research in privacy-aware Machine Learning*, ongoing  
2014-2016 M.Sc. software engineering TU Graz  
Thesis in *Graphinius - an online graph exploration platform*  
2005-2014 B.Sc. software engineering & business administration TU Graz  
Thesis in *graph extraction from image data*  
2002-2005 Studies of Economics KF University, Graz  
Special interest in political economics; not graduated  
1999-2002 Abendmatura @ College of further education Graz, Austria  
Specializing in mathematics and physics.  
1997-1998 ITCP Information Technology Certified Professional Wifi Graz

## Publications (first author)

- 2018 *The Need for Speed*. Comparison of JS vs. C++ -> (W)ASM  
2017 *Interactive Anonymization for Privacy aware ML*  
2017 *The more the merrier* - federated ML from local spheres  
2017 *Do not disturb?* - classifier behavior on perturbed datasets  
2016 *The Right to be forgotten*. ML on perturbed knowledge bases

## Conference talks

- 2017 ECML - European Conf. on Machine Learning, Skopje, Macedonia  
2017 CD-MAKE - ML and Knowledge Extraction, Reggio Calabria, Italy  
2017 ARES - Availability, Reliability & Security, Reggio Calabria, Italy  
2017 Security Forum Hagenberg, Linz, Austria  
2016 ÖGAI (Austrian society for AI) Meeting, Klagenfurt, Austria  
2016 ARES - Availability, Reliability & Security, Salzburg, Austria