Benjamin Liebald

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Executive Summary

Experienced Software Engineer and Engineering Manager with proven track record building massively scalable data mining and machine learning applications for the world's largest Internet applications. Expert knowledge of C++, Python, Mapreduce, Bigtable, and similar large-scale distributed data processing systems. Several years of experience leading and managing teams of varying size using a results driven and data oriented approach.

Experience

2012 to present **YouTube**, Engineering Manager

- Engineering Lead for YouTube Homepage, Recommendations, Personalization and Mix
- Responsible for a team of 20+ engineers working on all aspects of personalizing the user experience on the world's largest video sharing site.
- Launched redesign of homepage across mobile & web driving significant increases in watches and watch time.
- Launched YouTube Mix, a leanback experience for music and other verticals.
- Built out Personalization infrastructure to scale to YouTube traffic.
- Won Technology Emmy Award for Personalized Video Recommendations System in 2013.

2010 to 2012 **YouTube**, Staff Software Engineer

- Tech Lead for personalized video discovery: Leading a team that develops personalization and discovery technologies to help users find and engage with videos tailored to their interests.
- Designed, implemented, and maintained systems for computing video and channel recommendations that work on large-scale data sets (terabytes of data, hundreds of millions of users and items). Successfully used large-scale machine learning systems for ranking and candidate generation.
- Designed, built and deployed scalable backend systems (in C++) to serve personalized content across the YouTube website and apps. These systems are in the critical path for every single request to the YouTube homepage, resulting in very high QPS.
- Published an overview paper on YouTube's recommendation system in the ACM RecSys conference 2010.

2006 to 2010 **Google**, Software Engineer

- Worked on various projects in Search Ranking, web spam, and content discovery.
- Designed and implemented data-mining and machine learning applications on top of Google's distributed systems and logs processing infrastructure (GFS, Mapreduce, Bigtable, Sawzall) that routinely processed hundreds of terabytes of data and ran on hundreds of machines.
- Led engineering team to develop personalization and recommendation features on various Google properties (Video, Product Search, iGoogle.).
- Developed software in C++, Python, Java, and various proprietary languages and tools.

2004 to 2006 **University of Illinois**, Research Assistant

- Worked with Prof. Dan Roth in the Department of Computer Science.
- As part of my Master's thesis research, Applied machine learning algorithms and techniques to anomaly detection systems for a research project.
- Project software implemented in Python and C++.
- Research results published in AAAI conference 2008.

Education

2004 to 2006 **University of Illinois, Urbana-Champaign, IL**
Master of Science (MSc) in Computer Science

- Research interests: Artificial Intelligence, Machine Learning
- Thesis topic: "Machine Learning Schemes For Active Intrusion Detection"
- Advisor: Prof. Dan Roth
- Cumulative GPA: 4.0/4.0, Major GPA: 4.0/4.0

2001 to 2004 **Jacobs University, Germany** (formerly International University Bremen)
Bachelor of Science (BSc.) in Electrical Engineering & Computer Science

- Undergraduate research in Robotics (Robocup), Signal processing, Machine Learning.
- Bachelor's thesis: "Exploration of different network topologies on the ESN signal crosscorrelation matrix spectrum"
- Member of IUB's Robocup team, working on soccer and rescue robots. Participated in Robocup World Championships 2003 in Fukuoka, Japan.
- Cumulative GPA: 4.0/4.3, Major GPA: 4.1/4.3

Awards & Achievements

2013	Technology Emmy Award for Personalized Video Recommendations System at YouTube. Accepted award on behalf of YouTube.
2010 to date	First alumni member and member of the executive committee on the Board of Directors of the Jacobs University Foundation of America (JUFA). JUFA is a 501(c)(3) approved fundraising organization for Jacobs University Bremen in the United States.
2004 to 2005	Richard T. Cheng Graduate Fellowship, University of Illinois, Department of Computer Science.
2003 to 2006	Scholar of the German National Academic Foundation (Studienstiftung des Deutschen Volkes).
2001 to 2004	Member of the President's List for outstanding academic achievement, International University Bremen (now Jacobs University Bremen).
2001 to 2004	Full merit-based undergraduate scholarship, International University Bremen (now Jacobs University Bremen).

Skills

- Programming languages: C++, Python, Sawzall (8+ years of experience); Java, Matlab (intermediate); PHP, Javascript, HTML, Go (basics).
- Expert knowledge in writing distributed applications using Mapreduce, GFS, Bigtable and other Google-pioneered Big Data technologies that run on hundreds to thousands of machines.
- Several years of experience as Technical Lead and Engineering Manager for multiple teams. Participated in multiple Engineering Leadership courses at Google.
- Languages: German (mother tongue), English (near native), French (intermediate), Spanish (basic).
- Hobby coding projects at https://github.com/liebald

Publications

- James Davidson, Benjamin Liebald, Junning Liu, Palash Nandy, Taylor Van Vleet, et al. The YouTube video recom- mendation system. RecSys '10: Proceedings of the fourth ACM conference on Recommender systems, 2010
- Benjamin Liebald, Dan Roth, Neelay Shah, Vivek Srikumar. Proactive Intrusion Detection. Proceedings of the 23rd AAAI conference on Artificial Intelligence, 2008

- Holger Kenn, Stefano Carpin, Max Pfingsthorn, Benjamin Liebald, Ioan Hepes, Catalin Ciocov, Andreas Birk. FAST- Robotics: a rapid-prototyping framework for intelligent mobile robotics. Proceedings of the 2003 IASTED International Conference on Artificial Intelligence and Applications, 2003
- Andreas Birk et al. The IUB 2002 Smallsize League Team. In Gal Kaminka, Pedro U. Lima, and Raul Rojas, editors, RoboCup-02: Robot Soccer World Cup VI, Lecture Notes on Artificial Intelligence. Springer, 2002.
- Andreas Birk et al. The IUB 2002 Rescue Robot Team. In Gal Kaminka, Pedro U. Lima, and Raul Rojas, editors, RoboCup-02: Robot Soccer World Cup VI, Lecture Notes on Artificial Intelligence. Springer, 2002.