

Utkarsh Upadhyay

Software Developer at Better AG

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Work & Education

Apr '12 – now	Software Developer at Better AG, web-client development and data visualisation
Aug '10 – Feb '11	Internship at CCIL-NEC, Japan on <i>Information diffusion on Twitter</i>
Sept '09 – Feb '12	MS in Computer Science at EPFL, Switzerland, GPA: 5.7/6
May '08 – July '08	Internship at Microsoft Research, Redmond on <i>RoboClone, a replacement for RoboCopy found on Windows machines</i>
Aug '05 – May '09	B.Tech. in Electrical Engg. from Indian Institute of Technology, Kanpur; CPI: 9.5/10
Mar '04 – Mar '05	Class XII (ISC) from St. Dominic Savio College with 96.25% marks
Mar '02 – Mar '03	Class X (ICSE) from St. Dominic Savio College with 92.4% marks

Scholastic achievements

2012	Awarded <i>Prix ECLA Informatique</i> for highest GPA in Computer Science MS at EPFL
2009-10	Awarded the Academic Excellence scholarship for studying at EPFL
2009	Silver medal at the programming competition ACM-SWERC '09
2005-09	Recipient of the Aditya Birla Scholarship (Given to 10 students all over India)
2005-06	Recipient of the Academic Excellence Award at IITK
2005	Secured 108 th rank in Joint Entrance Examination for IITs (Percentile: 99.97%)

Technical skills

Programming	Typescript, Javascript, Python, R, C++, C, Java, Haskell, Ocaml
Other tools	Angular.js, D3.js, nginx, EC2, Meteor, gdb, L ^A T _E X, SCORM
Languages spoken	English (fluent), Hindi (native), French (beginner), German (beginner)

Work experience & Selected Projects

Apr '12 – now	Web-client development and data visualisation , at Better AG Third employee at the e-learning startup. Assumed various roles during the growth period. Currently developing a large customer facing single page client written in Typescript using Angular for administration and exposing analytics through visualisations made with D3.
Jan '12 – Feb '12	Implementing MPTCP on ns3-dce , under Prof. J. Le Boudec Found and reported bugs in <i>ns-3-dce</i> which limited its use as a benchmarking platform for Multi-path TCP connections and invalidated results. Involved gdb-intensive debugging of the MPTCP-enabled Linux kernel and <i>ns-3-dce</i> 's network stack. See publications.
Aug '11 – Feb '12	Thesis: Reliable comm. & control for the Smart Grid , under Prof. J. Le Boudec Designed and implemented high level communication protocols in Ocaml between the energy provider and Smart Home Controller with a service curve based approach to demand-response. Used C++ for controlling Hardware, Python for monitoring and ZeroMQ for IPC. Details here: http://musicallyut.in/docs/MS_thesis.pdf
Aug '10 – Feb '11	Investigating information diffusion in social networks , under Dr. Satoko Itaya Worked as an intern at CCIL-NEC in Nara, Japan on metrics for evaluation of participants in group discussions on Twitter. Wrote python based long running application to capture conversations and perform data analysis. See publications.

Work experience & Selected Projects

- May '10 – Jul '10 **Devising a top-down strategy for a swarm of robots**, under Prof. Alcherio Martinoli
Designed and optimized a top-down strategy to solve a variant of search and rescue problem which had been solved using bottom-up approach in order to compare the two approaches. Concluded that having a centralized strategy does not help in recourse constrained settings. Details: See publications.
- Nov '08 – Feb '09 **Real time algorithmic trading application** for IB Olympiad
Worked on an existing application [Ptolemy](#), and added real time trading strategies to it to compete in a worldwide Collegiate Algorithmic trading Olympiad organized by Interactive Brokers. Details: See publications.
- May '08 – July '08 **Roboclone**, under Nikolaj Bjørner
Continued work during an **internship at Microsoft Research, Redmond** on a file copy program 'RoboClone', a replacement for RoboCopy found on Windows machine. It featured a resource adaptive threadpool and integrated Remote Differential Compression, using .NET Remoting for RPCs. Details here: <http://research.microsoft.com/en-us/people/nbjorner/rap.pdf>

Academic Publications

- R. Khalili, N. Gast, M. Popovic, **U. Upadhyay**, Jean-Yves Le Boudec (EPFL). *MPTCP is not Pareto-optimal: Performance issues and a possible solution*. **Best Paper Award**, CoNEXT 2012.
- G. Mermoud, M. Mastrangeli, **U. Upadhyay** and A. Martinoli. *Real-Time Automated Modeling and Control of Self-Assembling Systems*. 2012 IEEE International Conference on Robotics and Automation, St. Paul, Minnesota, USA, May 14-18, 2012.
- **U. Upadhyay**, N. Yoshinaga, S. Itaya, R. Tanaka, T. Konishi, S. Doi, K. Yamada and P. Davis. *Evaluation of Participants in Group-discussions on Twitter*. To be presented in 8th Applications of Social Network Analysis, Sept. '11. To appear in *Procedia - Social and Behavioral Sciences* (Elsevier).
- G. Mermoud, **U. Upadhyay**, W. C. Evans and A. Martinoli. *Top-Down vs Bottom-Up Model-Based Methodologies for Distributed Control: A Comparative Experimental Study*. Proceedings of the 12th International Symposium on Experimental Robotics (ISER), Dec. 2010.
- R. Arora, **U. Upadhyay**, R. Tulshyan, K. Deb, J. Dutta. *A Parallel Randomized Algorithm for Solving Large Convex Minimax Problem*. 8th International Conference on Simulated Evolution and Learning (SEAL), Dec. 2010.

Interests & activities

- A mentor at the EE (Electrical Engineer's) Summer-camp (2009). Mentored the group which won the best Student project award.
- An active Counseling Service member, helping academically weak students as a Link student (2006-08), new comers to adapt to the new milieu as a Student Guide (2006-07), and as a Senior Student Guide (2007-08).
- Various position of responsibilities held:
 - Coordinator of SciMaTeX, the pure science events, and TesseractT, the online puzzle solving competition in Techkriti (technical festival) '08.
 - Secretary for Electronics club, English Literary Society events in Antragni (cultural festival) '07.
 - A problem setter for International Online Programming Competition, conducted in Techkriti '08.
- Various prizes in puzzle solving and programming competitions:
 - Silver medal at Swiss national *HC²* '10 programming competition at EPFL.
 - Silver medal at ACM-SWERC '09 programming competition at Madrid, Spain.
 - 2nd place twice in Chaos programming contest (Techkriti '06 and '07).
 - 2nd place in 99 word story writing competition in Alfaaz '08, the literary festival.
 - 1st place in Electronic Circuit Design Competition, Techkriti '06.