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 *Information diffusion on Twitter*
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 *RoboClone, a replacement for RoboCopy found on Windows machines*
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 *Prix ECLA Informatique* 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 108th 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, LaTeX, 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 *ns-3-dce* 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 *ns-3-dce*'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, Nice, France, Dec 10-13 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*. Presented in 8th Applications of Social Network Analysis, Sept. '11. 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

- Active member of Stack Overflow.

- Prizes in puzzle solving and programming competitions:
    - Silver medal at Swiss national HC^2 '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.

- Position of responsibilities held:
    - Coordinator of SciMaTeX, the pure science events, and TesseracT, 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.