

# Utkarsh Upadhyay

## Software Developer at Better AG

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## Work & Education

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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: <b>5.7/6</b>
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: <b>9.5/10</b>
Mar '04 – Mar '05	Class XII (ISC) from St. Dominic Savio College with <b>96.25%</b> marks
Mar '02 – Mar '03	Class X (ICSE) from St. Dominic Savio College with <b>92.4%</b> marks

## Scholastic achievements

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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 <sup>th</sup> rank in Joint Entrance Examination for IITs (Percentile: 99.97%)

## Technical skills

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

## Work experience & Selected Projects

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Apr '12 – now	<b>Web-client development and data visualisation</b> , 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	<b>Implementing MPTCP on ns3-dce</b> , 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	<b>Thesis: Reliable comm. &amp; control for the Smart Grid</b> , 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: <a href="http://musicallyut.in/docs/MS_thesis.pdf">http://musicallyut.in/docs/MS_thesis.pdf</a>
Aug '10 – Feb '11	<b>Investigating information diffusion in social networks</b> , under Dr. Satoko Itaya Worked as an <b>intern at CCIL-NEC in Nara, Japan</b> 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

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- 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

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- 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*. Presented in 8<sup>th</sup> 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 12<sup>th</sup> 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*. 8<sup>th</sup> International Conference on Simulated Evolution and Learning (SEAL), Dec. 2010.

## Interests & activities

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- Active member of Stack Overflow.
- Prizes in puzzle solving and programming competitions:
  - Silver medal at Swiss national *HC<sup>2</sup>* '10 programming competition at EPFL.
  - Silver medal at ACM-SWERC '09 programming competition at Madrid, Spain.
  - 2<sup>nd</sup> place twice in Chaos programming contest (Techkriti '06 and '07).
  - 2<sup>nd</sup> place in 99 word story writing competition in Alfaaz '08, the literary festival.
  - 1<sup>st</sup> place in Electronic Circuit Design Competition, Techkriti '06.
- 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.