

Debasish Das

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[Portfolio](#) [LinkedIn](#)

OBJECTIVE Technical Lead role focused on design and implementation of large scale data pipelines and machine learning algorithms.

EDUCATION *Doctoral in Computer Engineering* GPA : 3.9/4.0
Department of Electrical Engineering and Computer Science,
Robert R McCormick School of Engineering and Applied Sciences,
Northwestern University, Evanston, USA

Bachelor of Technology (B.Tech, Hons, 2004) GPA : 8.3/10.0
Department of Computer Science and Engineering
India Institute of Technology, Kharagpur, India

TECHNICAL SKILLS

- Languages: Scala, Java, C/C++, Javascript, Python, Tcl, Visual C++, Verilog
- Skills: Spark, Lucene, Solr, Cassandra, HBase, Akka, YARN, HDFS, Distributed Systems, Machine Learning, Convex Optimization, Linear Programming, Multithreading, Algorithms, Data Structures, Automatic Differentiation

OPEN SOURCE

- [k-NN](#) based time series prediction and forecast
- [Data Access Object](#) for Spark, Lucene and Solr integration to support hybrid row/column storage and search for machine learning flows
- [Framework](#) for building Batch, Streaming and API workflows using Spark and Akka compute
- Contributed [recommendAll](#) feature to Spark MLlib
- [Constrained Matrix Factorization](#) for recommendation and topic modeling
[Spark Summit 2014 Presentation](#)
- [Row based similarity computation](#) and Twitter DimSum comparisons
[Spark Meetup 2015 Presentation](#)
- [Quadratic and Nonlinear Programming](#) solvers using ADMM
- [Conic Solver](#) for JVM and Spark integration

EXPERIENCE *Distinguished Engineer / Software Architect* May 2013 - Present
Verizon, Palo Alto, CA, USA
Advisor: Ashok Srivastava, Professor Stephen Boyd

- Advertising: [Verizon Audience Insight](#) for building Audience using Temporal, Location, Clickstream and CRM attributes from Verizon Wireless datasets and serve ads on Oath properties (yearly revenue 25 Million)
- Marketing: Near-RealTime Lookalike Modeling, Discriminant Analysis and Demand Forecasting for Audience
[Spark Summit East 2017 Presentation](#)
[Spark Summit Europe 2016 Presentation](#)
- Platform-as-a-Service: Verizon Insight deployment for international carriers powered by [trapezium](#) (yearly revenue 10 Million)

- IoT Security: Streaming DDoS Detection on Verizon Wireline datasets using statistical, autoregressive and k-NN models
Hadoop Summit Tokyo 2016 [Presentation](#)
- Architecture validation for OLAP store using Solr, Druid and internally developed LuceneDAO
- Leading collaboration across Platform, Data Engineering and Data Science teams to hit timely release schedules
- Provided technical guidance and coaching to developers, and conducted design discussion, code review and data validation.

Staff Research and Design Engineer April 2012 - April 2013
Synopsys Inc, Mountain View, CA, USA

- Generated machine learning models from post-routed sign-off timing data
- Network flow solver benchmarking for System-On-Chip density optimization

Member of Consulting Staff May 2011 - March 2012
Magma Design Automation, San Jose, CA, USA (Acquired by Synopsys Inc)

- Developed algorithms to solve quadratic programs with nonlinear objectives derived from performance and legality constraints of VLSI circuit placement

Place and Route Development Engineer September 2009 - May 2011
Mentor Graphics, San Jose, CA, USA

- Developed multi-core graphical automatic differentiation engine for handling soft-max objectives in circuit placement algorithms
- Developed Augmented Lagrangian based algorithms using L-BFGS to solve large scale nonlinear constrained optimization problems (tested upto 100M nodes and edges).

Research Assistant Spring 2005 - August 2009
EECS Department, Northwestern University, Evanston, IL, USA

Advisor: Professor Hai Zhou

- Developed graph algorithms for static timing analysis with crosstalk
- Developed lagrangian relaxation based sub-gradient optimizer for gate sizing problem

ACHIEVEMENTS

- Verizon Spotlight Award for design and implementation of lambda architecture for streaming anomaly detection flows using Spark, Spark Streaming, Hive and Cassandra.
- Place and Route Division, Mentor Graphics Excellence Award for architecting the multithreaded direct timing engine to drive timing driven placement.
- Place and Route Group Excellence Award for developing the timing driven placement engine TESLA and replace the old offering with the new engine.
- Nominated for Intel Foundation PhD Fellowship from Robert R McCormick School of Engineering and Applied Sciences, Northwestern University for year 2007.
- Awarded Walter P Murphy Fellowship by the Department of Electrical Engineering and Computer Science, Robert R McCormick School of Engineering and Applied Sciences, Northwestern University for 2004-2005.

IMMIGRATION STATUS Green Card

**SELECTED
PUBLICATIONS**

- Jia Wang, Debasish Das and Hai Zhou. Gate Sizing by Lagrangian Relaxation Revisited, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), San Jose, CA, 2007
- Debasish Das, Kip Killpack, Chandramouli Kashyap, Abhijit Jas and Hai Zhou. Pessimism Reduction in Coupling Aware Static Timing Analysis Using Timing and Logic Filtering, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Seoul, Korea, 2008. (Best Paper Award Nominee : 10/350)
- Debasish Das, Jia Wang and Hai Zhou. iRetILP: An efficient incremental algorithm for min-period retiming under general delay model, Accepted to IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Hsinchu, Taiwan, 2010.
- Ahmed Shebaita, Debasish Das, Dusan Petranovic and Yehea Ismail, A Novel Moment Based Framework For Accurate and Efficient Static Timing Analysis. Accepted to IEEE Transactions on Computer-Aided Design (TCAD).

**RELEVANT
COURSES**

Design and Analysis of Algorithms, Advanced Algorithms, Seminar on Computer Security and Information Assurance, Random Processes in Communications and Control, Advanced Computer Architecture, Numerical Methods for Engineers, Mathematical Programming, Programming and Data Structure, Discrete Structures, Formal Language and Automata Theory, Artificial Intelligence, Applied Graph Theory, Probability and Statistics, Linear Algebra.

**ADDITIONAL
ACTIVITIES**

- Advisory Council member of [IBM Spark Technology Center](#)
- Reviewer for SIAM Data Mining, ICDM, TCAD, TVLSI, DAC, ICCAD, ISPD, ISQED, TAU and VLSI India