Dibyendu *"Dev"* Nath

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Education

University of California, Santa Barbara – Santa Barbara, CA — *Sep 2013 - Jun 2015*
Master of Science, Computer Science — *GPA: 3.92 / 4.0*
Advisors: Prof. Chandra Krintz, Prof. Rich Wolski

West Bengal University of Technology – Kolkata, India — *Aug 2007 - Jul 2011*
Bachelor of Technology, Computer Science & Engineering — *GPA: 8.74 / 10.0*

Experience

Google LLC — Mountain View, CA
Software Engineer – Google Shopping Serving Infrastructure — *Aug 2015 – Present*

University of California, Santa Barbara — Santa Barbara, CA
Research Assistant, RACE Lab – StochSS : Cloud-based Stochastic Simulation as a Service — *Oct 2014 – Jun 2015*
Teaching Assistant – Data Structures & Algorithms, Foundations of CS, Python Programming — *Sep 2013 – Jun 2014*

AppFolio Inc. — Goleta, CA
Software Engineering Intern – RentMatch : Appfolio's Pricing Analytics (Data Science) team — *Jun 2014 – Sep 2014*

McAfee Inc. — Bangalore, India
Software Development Engineer – Endpoint Encryption for Files and Folders (EEFF) team — *Feb 2012 – Aug 2013*

Indian Statistical Institute — Kolkata, India
Research Intern, CV & PR Unit – Query Expansion Improvement in Terrier Search Engine — *Jul 2010 – Jun 2011*

Technical Skills

Programming: Extensively coded in ***C/C++, Java & Python***. Proficient in *shell scripting, SQL, Go, Ruby.*
Web: Rails, Django, JavaScript, HTML, CSS, JEE. **Operating Systems:** Linux, Windows.
Machine Learning: scikit-learn, TensorFlow, NLTK.
Tools & Platforms: Hadoop, Spark, MapReduce/Flume, RabbitMQ, Celery, memcached, MySQL, Eucalyptus, Amazon Web Services, Google Cloud.

Select Projects

Google Shopping Ads Serving Infrastructure – *Google LLC* — *Aug 2015 – present*

- Member of the engineering team for Google Shopping serving infrastructure, involved in development of the serving stack and indexing pipeline for shopping results on google.com.
- Adding new features to scale existing serving systems & make them reliable and fault-tolerant; working on latency improvements and fixing critical bugs.
- Building new infrastructure for for showing organic shopping related results for queries on google.com.

StochSS : Cloud-based Stochastic Simulation as a Service – *RACE Lab, UC Santa Barbara* — *Fall 2014 – Spring 2015*

- Built a generic cloud computing framework for configuring virtual machines and auto-deploying arbitrary scientific simulation programs in the cloud by wrapping the source code as a web service.
- Developed *Flex Cloud*, a lightweight cloud service abstraction layer for supporting simulation runs over different infrastructures (physical, virtual, as well as public or private clouds).

RentMatch : AppFolio's Pricing Analytics – *AppFolio Inc.* — *Summer 2014*

- Worked in AppFolio's Data Science team on finding *Rental Unit Similarity* using machine learning methods based on features like amenities, associated text, school districts, location, linked census data, etc.
- Designed and built **Super Squirrel**, a *MapReduce* like framework for collecting and processing data, distributed across AppFolio's data centers.

EEFF : Endpoint Encryption for Files and Folders – *McAfee Inc.* — *Feb 2012 – Aug 2013*

- Worked on enterprise encryption product for Windows endpoints – contributed to client-side (including filter driver development) as well as server-side ePO management codebase.
- Developed **'Kill Pill'** Proof of Concept – remote deactivation and secure wiping of encrypted USB devices.
- Other features developed include **Key Cache Expiry,** code overhaul for **FIPS 140-2** encryption standard compliance, Role-Based Key Management, enhanced encrypted removable media recovery, etc.

RamseyCoin : Cloud Infrastructure for BitCoin Mining *Spring 2014*

– Designed and built a fault-tolerant, scalable P2P service for computing proof-of-work function for mining a fictitious bitcoin over disparate computing infrastructures like Amazon AWS, Azure, Condor, for feasibility demonstration.

eFUSE : Encrypted File System in User Space *Fall 2013*

– Built an encrypted file system in user space, based on the Unix File System using FUSE and OpenSSL libraries (AES encryption). Optimized read/writes by implementing LRU-based buffer and inode caching.

Chimera : Distributed Bank Ledger *Fall 2014*

– Designed and built a fault-tolerant, distributed, consistent store for a bank ledger where transactions can be recorded in replicated logs using a modified version of Paxos protocol to achieve consensus.

StockMood : Sentiment Analysis of StockTwits *Winter 2014*

– Developed a prediction model for Stock Market trends from sentiment analysis of **StockTwits,** a Twitter-like microblogging platform for stock market news, employing supervised machine learning methods.

Trac.kr : A Scalable Web App for tracking goals *Fall 2013*

– Developed a *Scalable Social Web Service* in *Rails*, that keeps track of goals that the user wants to achieve in areas like hobbies, socializing, family, health where your friends can offer suggestions, cheer you on or join a shared goal, etc.

Query Expansion Improvement in Terrier IR Platform – *Indian Statistical Institute* *Jul 2010 – Jun 2011*

– Optimized Query Expansion in *Terrier Information Retrieval Platform* by exploiting semantic relationships amongst words using **WordNet** in conjunction with **Local Context Analysis** techniques.

Publications

Drawert, B., Hellander, A., Bales, B., Banerjee, D., Bellesia, G., Daigle Jr, B.J., Douglas, G., Gu, M., Gupta, A., Hellander, S., Horuk, C., Nath, D., et al 2016. **"Stochastic Simulation Service: Bridging the Gap between the Computational Expert and the Biologist."** PLOS Computational Biology, 12(12), p.e1005220.

D. Nath, S. Ray, S.K. Ghosh, **"Fingerprint Recognition System: Design & Implementation,"** Proceedings of International Conference on Scientific Paradigm Shift In Information Technology & Management, SPSITM'11, January, 2011.

Awards & Honors

- Awarded multiple **peer bonuses** & **spot bonuses** as a *Google software engineer* for going beyond the call of duty and completing critical project launches.
- Ranked **585th (99.57 percentile)** out of about 130,000 students in *Computer Science,* in *Graduate Aptitude Test in Engineering, 2011* (Indian Graduate School Admission Exam for IITs/NITs etc).
- Recipient of **National Merit Scholarship** for securing **rank 49** in *State Secondary Examination, 2005* among about 700,000 students.
- Ranked among **top 2%** in *State Engineering Entrance Examination, 2007.*
- Awarded **Chitroprobha Upadhi Certification** in 2003 after completing a **6 year course on painting** by *Bengal Music College, Kolkata, India*.