Abhishek Singh

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EDUCATION

- **University of Massachusetts Amherst** **Sep 2017 - May 2019**
  M.S. Computer Science **3.95/4.00 GPA**
  Coursework: Artificial Intelligence, Reinforcement Learning, Machine Learning, Robotics, Neural Networks, Intelligent Visual Computing, Algorithms/Systems for Data Science, Applied Information Retrieval
- **Birla Institute of Technology and Science (BITS), Pilani**, Pilani Campus **Aug 2009 - Jul 2014**
  M.S. (Hons.) Mathematics, B.E. (Hons.) Computer Science **8.18/10.00 GPA**

WORK EXPERIENCE

- **Google Summer of Code** participant with yt organization (NumFOCUS)
  Software Developer **May 2018 - Aug 2018**
  - ✓ **Answer Testing Infrastructure on Cloud:** Developed a framework to test with datasets to make sure answers do not drift over time; optimized Travis runtime of test suites; increased python code coverage from 25% to 73%

- Software Robotics Corporation (Soroco), Bangalore
  Platform Engineer **Dec 2016 - Mar 2017**
  - ✓ **Automation of Package Deployment:** Fully automated the install/update/uninstall process for automation engines by creating RPM package of the database service, achieving zero downtime and reduced package deployment error-rate
  - ✓ **Database Authorization Layer:** Implemented SSL certificate based authorization layer for accessing database by automation engines and other service entities thereby enhancing data security

- Citicorp Services India Pvt. Ltd. (Citigroup), Pune
  Application Developer Supervisor, Citi Private Bank **Aug 2015 - Dec 2016**
  - ✓ **Message Center:** Redesigned global messaging application for secure real-time client-banker communication application leading to 50% reduced message payload for calling Message Center services, improved space and time performance for sending mails to multiple recipients
  - ✓ **Configuration Management:** Led the development of property management service (key-value database) to be used by all teams in Citi Private Bank; Implemented Java Messaging Service, Remote Procedure Calls, Digest Authentication for exposed web services

  Application Developer, Citi Equities Technology **Jul 2014 - Aug 2015**
  - ✓ **KDB/Q Web Portal:** With complete ownership, designed and developed a three-tiered web portal that enhanced business intelligence for profit-loss, risk and latency reports for traders in Options Market Making
  - ✓ **Risk Report integration into Management Information System (MIS):** Delivered a stable solution that publishes risk data from KDB/Q services (database) to MIS (frontend in ASP.NET) making MIS one stop platform for all reports

- Amazon Development Center, Hyderabad
  Software Development Engineer Intern **Jul 2013 - Dec 2013**
  - ✓ **Forecasting Tool:** Developed VBA tool that predicts weekly ad-hoc vendor truck requirements at a warehouse, improving forecast accuracy and transit time of goods, and reducing business costs by 5-10%

ACADEMIC PROJECTS

- **Paper Publication:** *"Provably secure one-round certificate-less authenticated group key agreement protocol for secure communications"* in Wireless Personal Communications (Springer) 2015
- **Neural Network Library:** Implemented convolution neural network library including LSTM, RNN and k-nearest neighbour; built a CNN based binary classifier for ship/iceberg satellite images using transfer learning from the ensemble of VGG16, ResNet50, InceptionV3, InceptionResNetV2 and Xception
- **Artificial Intelligence:** Implemented A* algorithm to solve knight's movement on a chessboard and travelling salesman problem, created sudoku solver as a constraint satisfaction problem
- **Robotics:** Developed simulated robot that can learn to grasp a ball using reinforcement learning (having 1 degree of freedom in eye, 1 shoulder 1 elbow joint and 3 degrees of freedom in base)
- **3D Deep Learning:** Implemented modules for 3D surface reconstruction from point clouds, convolution neural network based 3D shape classifier and eye detector
- **Search Engine:** Built a toy search engine for documents with indexing, retrieval models like vector space, BM25, ranking the results and query processing capabilities

PROGRAMMING SKILLS

- Python, Java, C/C++, VBA ● HTML, CSS, JavaScript, Ajax, jQuery ● SQL, Bash Shell, MATLAB