Vishu Goyal

Email : vishugoyal986@gmail.com

Research Interests

- Machine Learning and Artificial Intelligence
- Cryptography and Algorithms

Education

- **Indian Institute Of Technology** — Roorkee, India
  Bachelor of Technology in Computer Science and Engineering — *Aug. 2011 – Apr. 2015*
  CGPA: 9.325/10.0 — First Division with Distinction

Work Experience

- **Google Inc.** — Mountain View, CA
  Software Engineer, Payment Fraud ML Team — *Oct 2015 - Present*
  - Using ML to detect payment frauds across all Google products accounting to approx. $1.6B GMV pa.
  - Trained models with Sibyl, TensorFlow and Google Brain using SDCA, GBDT and TFBT and deployed them in production. Reduced losses by 20% and increased precision by 10%.
  - Awarded spot bonus by one of the Google directors for fraud prediction improvements.
- **Microsoft Reasearch Lab** — Bengaluru, India
  Research Intern, Advance Development Group — *May 2015 - Oct 2015*
  - Developed a 4 stage Dynamic Proof of Retrievability (DPOR) algorithm for Azure Server encryption.
  - This probabilistic algorithm reduced the retrievability test's time complexity from O(n) to O(1). Worked closely with the Microsoft Azure Server team to get the algorithm ported to production.
  - Also worked on FastXml approach of Multi-label classification. Implemented and evaluated both the serial and parallel versions of FastXml.
- **Adobe Systems** — Noida, India
  Research Intern, Advance Technology Labs — *May 2014 - July 2014*
  - Conceptualized and developed a dynamic ad scheduling system by using context and sentiment to customize ads.
  - The project involved extracting out audience demographics, player's performance index and language understanding using techniques of Computer vision, NLP and ML.
  - A system which successfully scheduled context sensitive Ads was developed and US patent (US14566366) also filed.
- **IBM** — Bengaluru, India
  Intern, Global Remote Mentoring — *July 2014 - Oct 2014*
  - Analyzed the default address selection algorithm (RFC 6724) in TAHI.
  - Implemented scenarios for selecting IPv6/IPv4 addresses while sending data packets in dual-stack implementations.
- **Indo-European Academy** — Guwahati, India
  Speaker — *Dec 2013 - Dec 2013*
  - Participated in session "High Performance Computing with Applications in Engineering, Materials and Processes".
  - Delivered a seminar talk on the topic "Architecture Of High Performance Computers.

Technical Skills

- **Programming Languages** - C, C++, C#, Java, Python, JavaScript, R, MATLAB.
- **Web development** - Node.js, AngularJS, Django, Yii.
- **Database** - MySQL, MongoDB, Spanner, Bigtable.
- **Software Packages** - Boost-C++, OGDF, OpenCV, XAMPP, Apache.

Projects

- **Skill Identification in Professional Networks** — Advisor - Prof. Sandeep Garg
  Undergraduate thesis, CSE Department, IIT Roorkee — *August 2014 - April 2015*
  - Conceptualized and developed an algorithm to identify and evaluate skills on professional networks like Linkedin.
  - Used techniques of NLP and ML to build skill graph and train models with Tensorflow. Resulted in 90% accuracy.
- **Extreme Learning ANFIS for Multiclass Classification** — Advisor - Prof. G.N. Pillai
  Research Project — *January 2015 - April 2015*
  - Implemented Extreme Learning ANFIS, one v/s all and one vs/ one DAG, approach for Multiclass classification.
  - Results showed 5% increase in precision and 6% increase in recall as compared to SVM multiclass classification.
- **Museum Art Recommendation System** — Advisor - Prof. Durga Toshniwal
  Research Project — *Aug 2014 - Dec 2014*
  - Designed and implemented an art recommendation system for museum visitors.
  - Two models, user model and artifact model, were trained and evaluated, 80% hit rate.
- **Inter Process Communication for Multicore OS** — Advisor - Prof. V.R. Choudhary
  Research Project — *January 2014 - April 2014*
  - Evaluated and improved performance of different IPC modes such as shared memory, message queues and sockets.
  - Implemented optimizations on kernel level and compared them with existing OS IPCs with different configurations.
- **Java and C++ IDE** — Independent Project
  SDS Labs, IIT Roorkee — *June 2013 - Oct 2013*
  - Designed and implemented an IDE in Java, capable of compiling and executing C++ and Java code.
  - Both backend and frontend were implemented using io, util and awt packages in Java.
- **CogniConnect** — Independent Project
  Cognizance-2013, Annual Tech Fest of IIT Roorkee — *Feb 2013 - April 2013*
  - Developed the official android application, launched on Google Play store, for Cognizance-2013.
  - The application was downloaded and used by 10000+ users.

Patents

- **Vishu Goyal**, Vikram Sethi, Sparsh Sinha, Sameer Bhatt, Rishub Garg. Advertisement Placement Prioritization. Application number US14566366, Assignee Adobe Systems Inc.

Awards and Achievements

- Finalist of **ACM ICPC** 4 times (Kanpur-2012, Kharagpur-2013, Amritapuri-2013,2014).
- Won **Microsoft Hackathon 2015** - Microsoft's annual company wise hackathon.
- Won many **Algorithmic Coding contests** : Inscription (NITK Suratkal), Coderush and Matrixed (IIT Roorkee), Dementia (IIT Mandi), Mindsweeper (IITM Jabalpur).
- Won **Ideaz** - research paper presentation competition.
- Finalist of **Collegiate Cyber Threat Competition** - Deloitte's National College hacking contest.
- Secured 3rd position in **HackCon14** - National hacking contest conducted by Microsoft.

Extra Curriculars

- **Coordinator, Cognizance** - Coordinator of various event at Cognizance, IITR Annual Tech-Fest.
- **Event Coordinator, iFest** - Coordinator of event Matrixed hosted by IEEE IITR student chapter.
- **National Service Scheme** - Volunteer at Prerna (NSS initiative for free education) for over 2 years.
- **Zonal handball player** - Honored by Directorate of Education for winning zonal Handball tournament.
- **Sanskrit Scholar** - Honored by Indian Sanskrit Academy for outstanding performance in Sanskrit.