Prashant Jalan

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Education

Year	*Program/Board*	*College/School*	*CGPA/%*
2015	**B.Tech, Computer Science & Engineering**	Indian Institute of Technology Kanpur	**8.7**
2015	**Minor, Industrial Management & Engineering**	Indian Institute of Technology Kanpur	**8.7**
2011	All India Senior School Certificate Examination	Nalanda Academy	91%
2009	All India Secondary School Examination	Delhi Public School, Guwahati	93%

Awards & Achievements

- **Graduated with Distinction** for demonstrating exceptional academic performance throughout the program.
- Awarded **Academic Excellence** for exceptional academic performance during the year 2013-2014.
- Winning team at IIT Kanpur in the Research Innovation Challenge, **Xerox Research** Labs India, 2015.
- Shortlisted for **Ericsson Innovation Award**, along with 9 other teams all over India, 2014-2015.
- Secured 2nd position amond 400 other teams in **IHPC** (International High Performancwe Computing) 2014.
- Winners among ten other teams all over India in National Technical Challenge, **IBM I-CARE**, 2013.
- Winners in **Microsoft code.fun.do** 2013, a 24 hour hackathon organised at IIT Kanpur.
- **A* grade** for an exceptional performance in Computer Organisation, Operating System and Undergraduate Project.
- Secured **176^{th} rank** all over India in **IIT-JEE** 2011 among 4,80,000 candidates.

Publications

- "Identifying Hierarchical Structures in Sequences on GPU", Prashant Jalan, Arihant Jain and Subhajit Roy, 13th IEEE International Symposium on Parallel and Distributed Processing with Applications (**IEEE ISPA-15**).
- "TraffTrend - Real time traffic updates and traffic trends using social media analytics", **ACM CoDS 2015**.
- "Syllables as Linguistic Units?", Amitabha Mukerjee, Prashant Jalan, International Conference on NLP (**ICON 2014**).
- "Autonomous Rubik's Cube Solver Using Image Processing", **IJERT**, Vol. 2 Issue 10, October, 2013.

Work Experience

Oracle India Pvt Ltd
Sep ′15 - Present

- Working actively with the Oracle Public Cloud team in Oracle HQ under the VP of product development.
- Managing feature implementation and product development for the backend infrastructure of Oracle Public Cloud.

University of Heidelberg, Germany
July ′15 - Aug ′15

- Developed a system to visualise any configurable n-body system using vispy (OpenGL).
- Computed FTLE fields in **4D** on GPU using CUDA for particles having an initial mass and velocity.

Google Summer of Code, CloudCV
May ′15 - Aug ′15

- Designed a complete configuration management system (**CMS**) for the CloudCV backend server code using Docker.
- Developed a system to run the CloudCV algorithms in a **distributed** and preferential manner using Celery.
- Automated the installation process for both the server code and the CloudCV workers

Media.net, Directi
May ′14 - July ′14

- Analysed multiple real time data generated by the advertising system, supplemented with several dimensional properties.
- Developed a novel algorithm to discover anomalies by the detection of a gradual or sudden change (defined relatively).
- Designed an '**Anomaly Detection Engine**'and incorporated it into their existing GUI, reporting daily anomalies.

Systemantics
May ′13 - July ′13

- Designed an Android Service to **track user's attention** through irregular pattern in eye blinking or sensor readings.
- Explored **face recognition** in Android (using OpenCV for Android) for its utility in user authentication.
- Designed a gripper using pneumatic actuators and improvised the prototype of a **coconut tree climbing robot**.

Key Academic Projects

Rubicron
May′12 - July ′12

Under DRPG, IIT Kanpur (Sponsor)

- Conceptualized, designed and implemented an **autonomous 3x3 Rubik's cube solver** to detect, scan and solve a cube.
- Fabricated an independent mechanical prototype model (using Arduino Mega) to solve a cube in less than **25 moves**.

Pequitur: A Parallelised Implementation of Sequitur for GPU
Aug '13 - May'15

Advisor: Dr. Subhajit Roy (Assistant Professor, IIT Kanpur)

- Developed a novel algorithm inspired by Sequitur, **to compress & infer hierarchical structure** from a given sequence.
- Implemented Pequitur on GPU using CUDA in C++ achieving a **3x speedup** while having similar compression ratio.
- Paper titled 'Identifying Hierarchical Structures in Sequences on GPU' selected for oral presentation in **IEEE SPAA-15**.

Video Classification Against a Taxonomy
Aug '14 - Dec '14

Advisor: Dr. Amitabha Mukerjee (Professor, IIT Kanpur)

- Explored the different approaches in video classification: bag of visual words, convolutional neutral networks (**CNN**).
- Implemented a two stream CNN architecture (based on **optical flow** and object detection) for video classification.

Language Agnostic Grounded Lexemes Discovery
Dec '12 - May '13

Advisor: Dr. Amitabha Mukerjee (Professor, IIT Kanpur)

- **Discovered nouns** in an unannoted video together with multiple commentaries without word boundary knowledge.
- Developed an **unsupervised syllabic approach** which outperformed the orthographic word model.
- Published paper titled 'Syllables as Linguistic Units?' in the International Conference on NLP, **ICON 2014**.

TraffTrend
Jan '15 - May '15

Course Project, Social Media Analytics, Advisor: Dr. Shankar Prawesh

- Designed a software to show **real time traffic updates and trends** based on news articles, tweets and Facebook status.
- Classified the traffic data into multiple classes such as congestion, accidents, etc. with an accuracy of **82.3%**.

General Purpose 8-bit Computer
Jan '13 - May '13

Course Project, Computer Organisation, Advisor: Dr. Subhajit Roy

- Designed an 8-bit **programmable** computer following the MIPS(load-store) architecture with **I/O support**, 128b **RAM**.
- Implemented the system on FPGA using Verilog and supported recursive function calls through temporary stack storage.
- Used Booth's multiplication algorithm for reducing the latency of a multiplication operation. Awarded the **best project**.

Evaluating Phrasal Semantics: Figurative vs. Literal
July '13 - Dec '13

Course Project, Natural Language Processing, Advisor: Dr. Amitabha Mukerjee

- Adopted a **token based approach** to classify a phrase based on its usage in a given context into figurative or literal.
- Improved accuracy significantly by consideration of both noun and verb tokens. Awarded the **best project**.

Other Projects

· **Get Your Personal Homepage (GYPH)**: Designed a simple **WYSIWYG** homepage editor using Flask and JS. Received **2500 visits** within a week. Integrated the system with IIT Kanpur CSE website for the use of campus community.
· **C to JVM compiler**: Compiler supporting **type checking**, recursive functions, error handling, **short circuiting**.
· **NachOS Modification**: Incorporated **synchronisation**, **load balancing** and memory management.
· **Tracking Players in a Basketball Game**: Tracked players in a single camera basketball game.
· **Microsoft Kinect App**: Designed a Microsoft Kinect Application to **virtually play and learn** a musical instrument. Incorporated support for simultaneously playing more than one instrument. Won the **first prize** in Microsoft code.fun.do.
· **Navigator**: Android app for indoor navigation using **dead reckoning**, **wifi triangulation** and step counting.
· **Smart Email Client**: **Automatically filter emails** based on supervised learning using TF-IDF and SVM classifier.
· **Music Finder**: Designed an Android application to **recognise Hindi songs** from a 10 second recorded snippet by matching frequency of robust points. Tested with a database of 500 Hindi songs. Won the **first prize** in IBM I-CARE.
· **Social Authentication**: Explored and implemented different social authentication techniques in Node.js framework.

Skills

· Languages: C, C++, Python, Matlab, Octave, Java, JavaScript, R, Android, DOT, Bash.
· Frameworks: Git, CUDA, Caffe, OpenCV, Weka, Arduino, Assembly, Verilog, NLTK, Lex, Yacc, OpenGL LaTeX.
· Backend Systems: Docker, Flask, Django, Node.js, Nginx, PHP, SQL, Redis, AWS Cloud.

Presentations & Workshops

· Invited for the 5th South Asia Workshop 2015 at the School of Computing, **N.U.S.**, Singapore.
· Presented our paper "Syllables as Linguistic Units?" in **ICON 2014**, Goa, India.
· Presented our software "TraffTrend" in the XRCI Open Conference, 2015, organised by **Xerox Research** Labs India.
· Attended the workshop on Data and Text Analytics (**DATA 2014**) organised by S.A.U., New Delhi.
· Presented our software "Music Finder" in the IBM I-CARE Conference 2013, organised by **IBM Research** Labs India.