

Varun Sah

(M): +1-(608)-335-5562, (E): varun@cs.wisc.edu, (W): www.varunsah.com

OBJECTIVE	To research, design, and create Artificial Intelligence software products in industry or academia. I currently specialize in the applications of ML algorithms to medical data.	
EDUCATION	University of Wisconsin-Madison Master of Science (MS), Computer Science <i>Specializing in Machine Learning and Artificial Intelligence</i>	Sep 2016-Jun 2018 CGPA: 4.0/4.0
	Birla Institute of Technology and Science, Pilani Bachelor of Engineering (Hons.), Computer Science <i>3rd in the CSIS Department</i>	Aug 2010-Aug 2014 CGPA: 9.56/10 Class of 2014
EXPERIENCE	<i>Graduate Teaching Assistant, Data Structures</i> Department of Computer Sciences, University of Wisconsin-Madison <i>Mentor: Deb Deppeler</i> <ul style="list-style-type: none">• Held office hours, lead discussions, mentored students and graded exams.• Designed and developed teaching material including programming assignments, sample solutions and grading scripts. Implemented in <i>Java</i>.	Aug 2016-Dec 2016
	<i>Software Engineer</i> Global Consumer Engineering Division (GCED), PayPal <i>Mentors: Mr. S Faneeband, Director, PayPal; Mr. M Mehta, Senior Director, PayPal</i> <ul style="list-style-type: none">• Designed and implemented a 3 tier pipes and filters architecture for an automated, context aware, configurable feedback platform. Implemented in <i>Java</i> and <i>Node.js</i>.• Implemented sentiment analysis and subject extraction in order to identify issues and raise developer bugs to responsible parties directly from customer feedback.• Devised and implemented a multi-threaded, <i>PL/SQL</i> based approach for migration of 3 billion records on a live database.	Jan 2014-Jul 2016
	<i>Research Intern</i> Viterbi School of Engineering, University of Southern California (USC) <i>Mentors: Professor R Jain, USC; Dr. S Kotova, UCLA</i> <ul style="list-style-type: none">• Gauged the degree of association between epidural administration and requirement of urinary catheterization using Biostatistics. Implemented in <i>R</i>.• Devised clinically relevant multi-variable risk profiles by converting ordinal variables into nominal variables using a threshold bucketing technique.	May 2013-Feb 2014
	<i>Research Intern</i> Reactor Control Division (RCD), Bhabha Atomic Research Centre (BARC) <i>Mentor: Dr. A K Bhattacharjee, Scientific Officer (H), RCD, BARC</i> <ul style="list-style-type: none">• Jointly developed Static Analysis Software that enables detection of run-time errors during compile time in safety critical programs. Implemented in <i>C</i> and <i>Java</i>.• Studied Program Verification techniques like Invariant Generation & Static Analysis.	May 2012-July 2012
TECHNICAL SKILLS	<i>Programming: C, Java, PL/SQL, Python, x86 Assembly, Node.js, PHP, HTML/CSS</i> <i>Technical Packages: MATLAB, R, MySQL</i> <i>Other Packages: L^AT_EX, Photoshop, Git</i>	
SELECTED PUBLICATIONS	S. Kotova, V. Sah, N. Nayyar and R. Jain, "Thoracic Epidural Analgesia Does Not Require Prolonged Urinary Catheterization", <i>Academic Surgical Congress</i> , 2014.	

SELECTED
PROJECTS

FacePal PayBook

Mentor: Mr. S Faneeband, Director, PayPal Feb 2015 – Mar 2015

- Facebook-PayPal integration to enable peer to peer transactions on both platforms.
- Daemon-enabled donations to fundraising campaigns and charities via facebook pages. Implemented in *Java*.

Cryptography: Achieving Privacy and Data Security

Mentor: Ms. Deepmala Agarwal, Maths Dept., BITS Pilani Aug 2013 – Dec 2013

- Analyzed pseudo-random number generation techniques used in cryptographic algorithms and implemented 2 stream ciphers: SYND¹ and 2SC². Implemented in *C*.
- Concluded that SYND stream cipher compares favorably with 2SC in terms of time efficiency, but lacks in storage efficiency as it requires significantly larger key sizes.

Compiler for Model Programming Language

Mentor: Ms. Vandana Agarwal, Dept. of CSIS, BITS Pilani Jan 2013 – May 2013

- Parsed a Context Free Grammar for the Model Programming Language, constructed an Abstract Syntax Tree and generated x86 code for input syntax.
- Features of sequential abstract data structures, explicit function calls and static flow analysis for basic looping and conditional structures. Implemented in *C*.

RELEVANT
COURSEWORK

Graduate Courses

Artificial Intelligence

Optimization

Undergraduate Courses

Probability & Statistics

Advanced Calculus

Advanced Linear Algebra

Differential Equations

Numerical Analysis

Optimization & Operations Research

Computer Graphics

Machine Learning

Data Science

Data Structures and Algorithms

Theory of Computation

Advanced Computer Organization

Operating Systems

Computer Networks

Database Systems

Prog. Languages & Compiler Construction

ACADEMIC
HONORS

- Awarded **Computer Sciences Scholarship** by UW-Madison. 2016-2017
- Awarded **Guaranteed Graduate Assistantship** by UW-Madison. 2016-2018
- Awarded **Golden Ticket Award** by PayPal. 2016
- Awarded **Viterbi-India Program Scholarship** by the IUSSTF³. 2013
- Awarded **Summer Research Fellowship** by the Indian Academy of Sciences. 2013
- Awarded **OPJEMS Scholarship** by the O.P Jindal Group. 2012
- Awarded **Merit Scholarship** by BITS Pilani for all semesters. 2010-2012
- Awarded **Merit Scholarship** by Maharashtra State Board of Education. 2007-2009

EXTRA-
CURRICULAR
ACTIVITIES

- *Advisory Board Member*, SACM, University of Wisconsin-Madison 2016
- *Targeted Savings: Winner* (Bangalore), PayPal Consumer Hackathon. 2015
- *PayPal On Delivery: Runner-up* (Bangalore), PayPal Global Hackathon. 2014
- *Static Analysis for Run-time Error Detection: Runner-up*, APOGEE⁴. 2013
- *StuCCAn*, Student Council for Cultural Activities, BITS Pilani. 2013
- *Head*, Department of Stage Controls, BITS Pilani. 2013
- *Cofounder*, DocInsta, New Venture Creations. 2012
- *ProSwApp: Profile Switching Application: Runner-up*, Cyberfiesta, APOGEE. 2012

¹ *SYND: Fast Code-Based Stream Cipher with a Security Reduction* P Gaborit, C Laradoux, N Sendrier

² *2SC: Efficient Code-based Stream Cipher*; M Mezziani, P Cayrel, and SM El Yousfi Alaoui

³ Indo-US Science & Technology Forum

⁴ BITS Pilani's annual tech fest