Rahul Nanda

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Education

Fall 2017 - Present **Purdue University, West Lafayette, Indiana**,
MS in Computer Science.

2009 - 2013 **Indian Institute of Technology (IIT) Indore, INDIA**,
Bachelor of Technology in Computer Science & Engineering (CGPA: 8.49 on a scale of 10).

- Highest CGPA of 9.28/10 in the last two years that covered the core CS courses

Work Experience

Nov 2014 - May 2017 **CK-12 Foundation**, *Software Developer (Backend).*

(A non-profit org to provide free, high quality K-12 education in the US and worldwide through technology. Funded by Vinod Khosla - Venture Capitalist and co-founder of Sun Microsystems)

Languages: Python, Javascript(basic) **Frameworks:** Pyramid, Pylons, BackboneJS, UnderscoreJS
Databases: MySQL, MongoDB, Redis (for caching)

Major Projects:

- **Backend for Courses** - designed and developed the complete backend support (REST APIs, scripts for data ingestion, celery tasks for scheduled processing) for Courses feature to be introduced on the site.
- **Image Optimization** - Added the support for optimized images to improve content loading time and reduce bandwidth costs. The project involved writing script for creating compressed versions of existing approx 200,000 png and jpeg images, storing them as new datastreams in Amazon S3 and then modifying the required APIs to return them. Also designed and developed the complete system of scheduled tasks for compressing newly uploaded images and appropriately managing any failures in the process.
- **Deep Copy** - Implemented an analysis phase of the complex deep copy operation to recursively copy a book and its children elements from one user account to another.
- **Annotation tool backend** - Designed and implemented highly secure and efficient backend APIs for the annotation tool for highlighting text or creating notes on the website. Also wrote a script for mapping old annotation data (more than 1.5 million user created annotations) from a third-party tool called 'Scrible' to the new system.
- **Flexbook Save/Update Optimization** - Re-wrote the complete backend APIs to save/update flexbooks on CK-12 website, achieving 50-80% improvement in the performance (measured through server response time).
- **Popular Annotations** - Developed and implemented the algorithm to generate popular annotations from user-created annotations for different read modalities on the CK-12 online platform. Also wrote numerous scripts to analyse the user created highlights and generate various insights from the data (over 3 million annotations).

Apart from these projects, have written a lot of Python scripts for day to day maintenance and testing related work.

Aug 2013 - Oct 2014 **Cisco Systems**, *Software Engineer.*

Security Team, Network and Operating Systems Group (NOSTG)
Language: C **Component:** NAT (Network Address Translation) on Internetwork Operating System(IOS)
Mainly involved in bug fixing, feature development and solving customer issues .
Solved one major CFD (Customer Found Defect) related to aliasing entries in NAT which became a feature in itself.
Involved in the development of MAP-T (Mapping of Address and Port) that provides connectivity to IPv4 hosts across IPv6 domains. It performs double translation (IPv4 to IPv6 and vice versa) on customer edge (CE) devices and border routers.

Internships

May 2012 - July 2012 **Verimag Research Lab - CNRS, Grenoble, FRANCE**.
Advisor: Dr. David Monniaux
Worked on PAGAI, an open source static analysis tool (**URL:** https://forge.imag.fr/projects/pagai/)
Implemented a module to map variables and control-flow locations (in LLVM Intermediate Representation (IR)) in the PAGAI output to those in the original source code taken as input for static analysis, which users could readily understand.

Dec 2011 **Aricent Group, Gurgaon, INDIA**, *Alcatel Lucent Team*.
Advisor: Mr. Nitin Mehta, Senior Project Manager
Deployed and configured an instance of VxSim (VxWorks Simulator) on a remote Solaris server.

Skills & Abilities

- **Programming Languages:** C, C++, Python, Bash, Java, Lisp, Prolog
- **Web Development:** Django, Pylons
- **Databases:** MySQL, sqlite, MongoDB, Neo4j, Redis
- **Version Control:** svn, git
- **Cloud Platforms:** Amazon Web Services (AWS)
- **Operating Systems:** Linux, Mac OS, Windows