# Kunal Baweja

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## Education

- **Columbia University in the City of New York, USA** — Expected Dec 2017
  MS in Computer Science, GPA: 4.0/4.0

- **Birla Institute of Technology & Science, Pilani K.K. Birla Goa Campus, India** — Aug 2011 - May 2015
  B.E.(Hons.) in Computer Science, GPA: 7.49/10

## Professional Experience

- **Developer Intern, 1010 Data Inc** — June 2017 - Present
  - Functional programming in K for columnar database development.

- **Digital Centers Teaching Internship, Columbia University** — Sept 2016 - Present
  - Weekly Python programming lectures and workshops, open to everyone.

- **Research Internship at TSUNAMi Center, National University of Singapore** — June 2015 - May 2016
  - Web and systems security, applied cryptography and distributed systems.

- **Summer Internship at Bentley Systems Inc., India** — May 2014 - July 2014
  - Prototype and REST API development for *Bentley Connect Interoperability Services*

- **Summer Internship at Bharat Heavy Electricals Limited, India** — May 2013 - July 2013
  - Software Development for *BHEL Online Meeting Management System*

## Projects

1. **Coverage Based Fault Injection Fuzzing** — Jan 2017 - May 2017
   - Detects security vulnerabilities caused by errors in execution environment of a program.
   - Github: https://github.com/akshaynagpal/cbfi

2. **Frame-Seller: Simple demo for an e-commerce platform** — Jan 2017 - Apr 2017
   - Extensively used AWS for API development as a course project.
   - Github: https://github.com/bawejakunal/Frame-Seller

3. **Sigma Learn - Class Room Lectures to Student Notes [Columbia ADI Hackathon]** — Jan 2017
   - Converts classroom lectures to text transcripts and summary in realtime.
   - Weblink: https://devpost.com/software/sigma-learn

4. **ParkWizard - Real Time Street Parking Information** — Dec 2016
   - Android application to search and crowdsource information of street parking locations
   - Github: https://github.com/sas2387/ParkWizard

5. **A Secure Sharding Protocol for Open Blockchains [Accepted: ACM CCS-2016]** — Oct 2016
   - Weblink: http://dl.acm.org/citation.cfm?doid=2976749.2978389
   - Authors: Loi Luu, Viswesh Narayanan, Chaodong Zheng, *Kunal Baweja*, Seth Gilbert, Prateek Saxena

6. **WeShare: A Coercion Resistant and Scalable Storage Cloud** — Jun 2015 - Aug 2015
   - A Google Chrome Extension to securely share files over cloud storage services.
   - Github: https://github.com/bawejakunal/MyCrest

7. **A Vnode Level Stackable Encrypted Filesystem** — March 2015
   - Implemented a local vnode level stackable encrypted filesystem using Wrapfs as a base.
   - Github: https://github.com/bawejakunal/wrapfs-aes

8. **Intercepting Kernel System Calls** — Jan 2015
   - Loadable Kernel Module to intercept the open() system call in Linux (self learning project)
   - Github: https://github.com/bawejakunal/Intercept-System-Calls

9. **Generalised Vector Space Model** — Nov 2014
   - Document ranking using GVSM, done as a course project for Information Retrieval Course.
   - Github: https://github.com/bawejakunal/Generalised-Vector-Space-Model

10. **Predicting Telemarketing Call Patterns** — Oct 2014
    - C4.5 decision tree algorithm implemented on hadoop framework to predict the marketing call
      patterns of a bank offering loans.

11. **Bentley Connect Interoperability Services (BCIS)**     May 2014 - July 2014
    - Developed REST API endpoints and prototypes for BCIS to synchronize data and services among various stakeholders of an infrastructure development project.

12. **Symmetric Parallel Computing Cluster for Matrix Multiplication**     April 2014
    - Implemented a Beowulf Cluster with 4 nodes to compute product of matrices as a course project.
    - Note: Although we achieved fault tolerance for nodes, the system lacked in scalability goals.

13. **BHEL Online Meeting Management System**     May 2013 - Jul 2013
    - Salient Features: email reminders, calendar updates, file uploads, employee name search
    - Demo Presentation: https://goo.gl/2g8aAo

14. **8-Way Set Associative Cache with FIFO Replacement and Write Back Policy**     Oct 2013
    - A verilog implementation of cache as part of the undergraduate subject on Computer Architecture.
    - Github: https://github.com/bawejakunal/Set-Associative-Cache

## Teaching Experience

- **Course Assistant, Introduction to Programming with Python, Columbia University**     Feb 2017 - May 2017
  - Organized office hours for students and evaluated course assignments.

- **Teaching Assistant for Data Structures and Algorithms (BITS Pilani Goa Campus)**     Jan 2015 - Apr 2015
  - The course was conducted for undergraduate students by Mr. Ramprasad Joshi.

- **Teaching Assistant for Object Oriented Programming (BITS Pilani Goa Campus)**     Aug 2014 - Nov 2014
  - The course was conducted for undergraduate students by Mr. TSRK Prasad.

- **Teaching Assistant for Advanced Computer Organisation (BITS Pilani Goa Campus)**     Jan 2014 - Apr 2014
  - The course was conducted for undergraduate students by Dr. Lucy J. Gudino.

- **Teaching Assistant for Computer Programming (BITS Pilani Goa Campus)**     Jan 2014 - Apr 2014
  - The course was conducted for undergraduate students by Dr. Biju K. Raveendran.

## Certifications, Electives & Technical Skills

- **Coursera.org Certifications**
  - Python For Everybody by University of Michigan (5 course specialization) [Certificate Link]
  - Machine Learning Foundations: A Case Study Approach by University of Washington [Certificate Link]

- **Technical Skills**
  - C, Java, Python, JavaScript, Java Server Pages(JSP), SQL, HTML5, CSS3, MVC Frameworks, Django, AWS

## Achievements

- **Selected as a delegate to HPAIR 2016 Harvard Conference**     Feb 2016
  - Selected as a delegate to **Entrepreneurship Panel** of **Harvard Project on Asian and International Relations Conference 2016**, Harvard 2016.

- **Selected as a delegate to HPAIR 2014 Conference, Tokyo**     Aug 2014
  - Selected as a delegate to **Technology Panel** of **Harvard Project on Asian and International Relations Conference 2014**, Tokyo.

- **Among Top 10% students in National Standard Examination in Physics Regional Round**     2010, 2011
  - NSEP is organised every year by **Indian Association of Physics Teachers(IAPT)** as part of selection process for **International Physics Olympiad**.

- **Academic Excellence Scholarship in High School**     2009-2011
  - Awarded 75% scholarship at The Emerald Heights International School for consecutively two academic years.

## Extracurricular Activities

- **Photography Club Co-ordinator, BITS Pilani K.K. Birla Goa Campus**     2013 - 2014
  - Photography enthusiast and active member of the students' photography club on campus.

- **Member, Department of Finance & Assets Mangement, BITS Pilani K.K. Birla Goa Campus**     2011 - 2013
  - Active member of Department of Finance & Assets Management, which regulates the finances of student bodies on campus.

- Swimming, Table Tennis