

# 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

- **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. **ParkWizard - Real Time Street Parking Information** Dec 2016  
- Android application to search and crowdsource information of street parking locations, backed by AWS, Elasticsearch and Google Maps & Cloud Messaging  
- Github: <https://github.com/sas2387/ParkWizard>
2. **A Secure Sharding Protocol for Open Blockchains [Accepted: CCS-2016]** Oct 2016  
- ACM Conference on Computer and Communications Security, 2016  
- Weblink: <http://dl.acm.org/citation.cfm?doid=2976749.2978389>  
- Authors: Loi Luu, Viswesh Narayanan, Chaodong Zheng, Kunal Baweja, Seth Gilbert, Prateek Saxena
3. **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>
4. **A Vnode Level Stackable Encrypted Filesystem** March 2015  
- Implemented a local vnode level stackable encrypted filesystem using [Wrapfs](#) as a base.  
- Used AES 256 bit cipher in CTR mode for encryption of filesystem contents.  
- Github: <https://github.com/bawejakunal/wrapfs-aes>
5. **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>
6. **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>
7. **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.
8. **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.
9. **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.

10. **BHEL Online Meeting Management System** May 2013 - Jul 2013
  - Currently used by 2000 employees at [Bharat Heavy Electricals Limited, Bhopal](#).
  - Salient Features: email reminders, calendar updates, file uploads, employee name search
  - Demo Presentation: <https://goo.gl/2g8aAo>
11. **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

- **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