

# Prateek Dewan

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## Education

*Ph. D.*, Computer Science  
Indraprastha Institute of Information Technology-Delhi (IIITD), India  
Advisor: Dr. Ponnurangam Kumaraguru (PK)  
*2012-present*

*M. Tech.*, Computer Science  
Indraprastha Institute of Information Technology-Delhi (IIITD), India  
Specialization: Information Security  
*2010-2012*

*B. Tech.*, Computer Science  
Rajasthan Technical University, India  
*2006-2010*

## Technical skills and expertise

### Domains

Machine Learning, Data mining, Data science, Data Analytics for Online Social Networks, Natural Language Processing, Transfer learning, Deep learning

### Selected technologies

Python (Django, Webpy, Matplotlib, Scikit Learn, NLTK, Numpy), PHP, C, C++, NoSQL (MongoDB), MySQL, RESTful APIs (Facebook, Twitter, LinkedIn, etc.)

## Current research areas

Security and Privacy in Online Social Networks  
Web Security and Privacy  
Social Network Analytics  
Cyber Crime

## Experience / Collaborations

### Symantec Research Labs, India

Research Intern, *December, 2013 - May, 2014*  
Worked on a project on analyzing spear phishing emails using a combination of stylometric and social features.

### IBM India Research Labs, Delhi, India

Intern, *July, 2011 - November, 2011*  
Worked on developing ZoRRo, a system and method for preventing information leakage from text documents. We exploited access control policies from databases to identify and redact sensitive information from text documents.

### Dublin City University, Ireland

Visiting Researcher  
*May, 2012 - July, 2012; Jan, 2015 - March, 2015*  
Worked on building a web ontology for violent online political extremism and radicalization as part of VOX Pol.

## **Universidade Federal de Minas Gerais (UFMG), Brazil**

Research Collaborator, 2012-2013

Worked on uTrack, a web service which enables users of popular online social media services to track and analyze the diffusion of their information.

### **Products / Technologies built**

#### **Helix, 2016**

Browser plug-in and RESTful API for automatically summarizing images

Technology used: Tensorflow (Python), Tesseract-OCR (Python), MongoDB (back-end), Javascript (frontend)

<http://precog.iiitd.edu.in/osm.html#helix>

#### **Facebook Inspector (FbI), 2015**

Browser plug-in and REST API for real time detection of malicious posts on Facebook  
5,000+ downloads, 250+ daily active users, 2.2 million+ posts analyzed (January, 2017)

Technology used: Webpy (Python), MongoDB (backend), Javascript (frontend)

<http://precog.iiitd.edu.in/osm.html#fbi>

#### **MultiOSN, 2013**

System for realtime monitoring of real world events on multiple online social networks

Technology used: PHP, MySQL, Javascript

#### **uTrack, 2012**

Web service for users to track and analyze the diffusion of their content across multiple online social networks

Technology used: Django (Python), MySQL

#### **IBM ZoRRo, 2012**

Prototype for IBM's ZoRRo, an Information Rights Management system which exploits database systems' fine-grained, label based access control (LBAC) mechanism to identify and redact sensitive information from unstructured text, based on the user's access privileges.

Technology used: Django (Python), IBM DB2

#### **ChaMAILLeon, 2011**

Experimental email sharing service which provides users with a capability to define access control on their emails. ChaMAILLeon enables users to share their email account passwords with anyone they wish to, without having to worry about privacy issues.

Technology used: PHP, MySQL

### **Professional Activities**

Reviewer

Transactions of Behaviour & Information Technology (TBIT) (Journal), 2016

IEEE Ninth International Conference on Contemporary Computing (IC3), 2016

Additional Reviewer

2nd International Workshop on Privacy and Security in Online Social Media (PSOSM)

Co-located with 22nd International World Wide Web Conference (WWW), 2013

### **Awards and Honors**

Best poster award

Security and Privacy Symposium, IIIT Delhi, 2016

Program Committee Member

Youth Internet Governance Forum (yIGF), 2014

Best student award  
Security and Privacy Symposium, IIT Kanpur, 2014

Awarded NIXI Travel fellowship  
National Internet Exchange of India (NIXI), 2013-2014

Awarded Ph. D. Research Grant  
Government of India, 2012-2015

Awarded IBM India Scholarship during M. Tech. at IIIT-Delhi  
IBM India Research Lab (IRL), 2011-2012

Awarded GATE Scholarship  
Ministry of Human Resources Development (MHRD), Govt. of India, 2010-2012

## Selected Publications

### Journal

Deshpande, P., Joshi, S., **Dewan, P.**, Murthy, K., Mohania, M., Agrawal, S. “*The Mask of ZoRRO: Preventing Information Leakage From Documents.*” Knowledge and Information Systems Journal (KAIS), Volume 45, Issue 3, 2015

### Conferences, Workshops, and Symposiums

**Dewan, P.**, Bagroy, S., and Kumaraguru, P. “*Hiding in Plain Sight: Characterizing and Detecting Malicious Facebook Pages.*” IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) (Short paper), 2016

**Dewan, P.**, and Kumaraguru, P. “*Towards Automatic Real Time Identification of Malicious Posts on Facebook.*” 13th Annual Conference on Privacy, Security and Trust (PST), 2015

**Dewan, P.**, and Kumaraguru, P. “*Identifying spam on Facebook during events.*” 2nd ACM Conference on Online Social Networks (COSN), 2014 (Poster)

**Dewan, P.**, Kashyap, A., and Kumaraguru, P. “*Analyzing Social and Stylometric Features to Identify Spear phishing Emails.*” 9th APWG eCrime Research Symposium (eCRS), 2014

Mittal, S., Gupta, N., **Dewan, P.**, and Kumaraguru, P. “*Pinned it! A large scale study of the Pinterest network.*” 1st ACM IKDD Conference on Data Sciences (CoDS), 2014

**Dewan, P.**, Gupta, M., Goyal, K., and Kumaraguru, P. “*MultiOSN: Realtime Monitoring of Real World Events on Multiple Online Social Media.*” 5th IBM Collaborative Academia Research Exchange Workshop, 2014

**Dewan, P.**, and Kumaraguru, P. “*Facebook. Because studying events and spammers on Twitter is too mainstream.*” 2nd Security & Privacy Symposium (SPS), IIT-Kanpur, 2014

Magalhes, T., **Dewan, P.**, Kumaraguru, P., Melo-Minardi, R., and Almeida, V. “*uTrack: Track Yourself! Monitoring Information on Online Social Media.*” 22nd International World Wide Web Conference (WWW), 2013 (Demo Track)

**Dewan, P.**, and Kumaraguru, P. “*ChaMAILLeon: Usable email sharing like never before!*” 1st Security & Privacy Symposium (SPS), IIT-Kanpur, 2013

Conway M., **Dewan P.**, Kumaraguru P., McInerney L. “*White Pride Worldwide’: A Meta-analysis of Stormfront.org.*” Internet, Politics, Policy 2012: Big Data, Big Challenges? Oxford Internet Institute, University of Oxford, 2012.

### **Technical Reports**

**Dewan, P.** “*A Survey on Identification and Analysis of Poor Quality Content on Facebook.*” Ph.D. Comprehensive Literature Survey, 2014

**Dewan, P.**, and Kumaraguru, P. “*It Doesn’t Break Just on Twitter. Characterizing Facebook Content During Real World Events.*” Technical Report - arXiv:1405.4820 [cs.SI], 2014

**Dewan, P.**, Sachdeva, N., Gupta, M, and Kumaraguru, P. “*ChaMAILLeon: Exploring the Usability of a Privacy Preserving Email Sharing System.*” Technical Report - arXiv:1306.0195 [cs.CY], 2013

### **Graduate Courses**

Social Network Analysis (Lada Adamic, Coursera), Monsoon 2012  
Secure Coding, Monsoon 2011  
Research Methods, Winter 2011  
Applied Cryptography, Winter 2011  
Digital and Cyber Forensics, Winter 2011  
Information Retrieval, Winter 2011  
Foundations of Computer Security, Monsoon 2010  
Distributed Systems and Security, Monsoon 2010  
Advanced Algorithms, Monsoon 2010

### **Teaching**

Teaching Assistant for:  
– Privacy and Security in Online Social Media (PSOSM), Course on NPTEL (Indian version of Coursera), 2016  
– Designing Human Centered Systems (DHCS), Spring 2016  
– Privacy and Security in Online Social Media (PSOSM), Fall 2015  
– Advanced Algorithms, Fall 2012  
– Probability and Statistics, Spring 2012  
– Computer Organization, Fall 2011

### **Academic Affiliations**

**Cybersecurity Education and Research Centre (CERC), IIIT-Delhi**  
Researcher, February, 2013 - present

**Precog Research Group (Precog@IIITD)**  
Researcher, January, 2011 - present

**IIIT-Delhi**  
Student, Ph. D. Scholar, July 2010 - present