

# Rahul Islam

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## EDUCATION

**Indian Institute of Information Technology | GUWAHATI, INDIA**

B.Tech | Computer Science

## PUBLICATION

### Paper

1. Utkarsh Dwivedi, Karan Ahuja, **Rahul Islam**, Seema Nagar, Ferdous Barbhuiya, and Kuntal Dey. "EyamKayo: Interactive Gaze and Facial Expression Captcha." In Proceedings of Intelligent User Interface (IUI) (2016).(Submitted)
2. Karan Ahuja, **Rahul Islam**, Ferdous Barbhuiya, and Kuntal Dey. "A Preliminary Study of CNNs for Iris and Periocular Verification in the Visible Spectrum." In Proceedings of 23rd International Conference on Pattern Recognition (ICPR) (2016). (To be appear)
3. **Rahul Islam**, Karan Ahuja, Sandip Karmakar, and Ferdous Barbhuiya. "SenTion: A framework for Sensing Facial Expressions." arXiv preprint arXiv:1608.04489 (2016).

### Journal Papers

1. Karan Ahuja, **Rahul Islam**, Ferdous Barbhuiya, and Kuntal Dey. "CNNs for Ocular Smartphone-Based Biometrics." Pattern Recognition Letters Journal (PRL) (2016).(Journal) (Submitted)

## EXPERIENCE

### Computer Vision and Biometrics Lab | Co-FOUNDER

Jan 2016 – Present | IIIT Guwahati, India

I am a co-founder and member of the Computer Vision and Bio-metrics Lab at IIIT Guwahati. where my research focuses in reducing friction between man and machine by exploiting techniques of cognitive science, affective computing, machine learning and computer vision.

### UE HCI Lab, IIT Guwahati | PROJECT FELLOW

May 2016 – Jul 2016 | Guwahati, India

- Worked on an Anthropometric measurement system that measures tailoring point of person on the fly using Microsoft Kinect Sensor.
- I wrote the modules for computing height and shoulder length of a person.

### Brahmaputra Innovative Solutions | SOFTWARE ENGINEERING INTERN

May 2015 – Dec 2015 | Guwahati, India

- Worked with Apache Jackrabbit, Spring Framework, angularJS to design and develop a full stack implementation of a document management system.
- All code was reviewed, perfected, and pushed to production.

## RESEARCH

### Computer Vision and Biometrics Lab | RESEARCH ASSISTANT

Jan 2016 – Present | IIIT Guwahati, India

As a member of this lab I am working on Ocular Biometric in Visible spectrum. We have developed baseline machine learning models for ocular biometric in visible spectrum. I have also work in areas of affective computing, where I have developed state of the art facial expression recognition system.

### IIIT Guwahati | UNDERGRADUATE RESEARCHER

Aug 2014 – Dec 2015 | Guwahati, India

Worked with Dr. Ferdous Ahmed Barbhuiya to create TweeSpamAssgin, a tool to detect spam on online social media. Also worked on cryptographic key generation from PUF data.

# PROJECTS

## Iris Recognition in Visible Spectrum | IN PROGRESS

With Dr. Ferdous Ahmed Barbhuiya

- As a part of the project we are investigating state of the art iris recognition system using Near Infrared Camera
- We are trying to answer: Iris recognition in NIR is well established. Can we approach that baseline in visible spectrum?
- We are also exploring possible application of iris recognition in biometric based access control systems.

## FaceTensor : Face Expression Analysis | SPRING 2016

With Dr. Sandip Karmakar

- As a part of project we investigated state of the art facial expression recognition system
- We proposed a system that exploits geometric feature of face to detect facial expression
- Build a system that beats present state of the art system

## TweeSpamAssassin: Spam Detection Engine in OSNs | SPRING 2015

With Dr. Ferdous Ahmed Barbhuiya

- We investigated present models to detect spam on twitter.
- Inspired by email spam filter we developed a probabilistic based model to detect spam on twitter.
- The spam engine was deployed as browsers plugin to filter out spam on twitter.

## SLANG: Native language writer | SPRING 2014

- SLANG enables user write in their native language in English. Similar to what Google keyword (like “hinglish”) is doing.
- This was very simple implementation with no use of machine learning.

# SPECIFIC SKILLS

- Machine Learning and Computer Vision
  - OpenCV, Sci-Kit, Dlib, Theano
- Programming
  - Python, C++, C , Java
- Database
  - MongoDB, MySQL
- Web Technology
  - HTML, CSS, JavaScript, NodeJS, AngularJS, CardovaJS
- Others
  - Android Development ( Native and Hybrid Both), Full Stack JavaScript, Git, openMP, Photoshop

# COURSE WORK

## Basics

- Data Structures
- Algorithms
- Operating Systems
- Finite Language and Automata Theory
- Database and Management System
- Compilers
- Digital Design
- Computer Architectures
- Computer Networks

## Advanced Courses

- Parallel Programming
- Networks & Security
- Theory of Computation
- Distributed Systems
- Number Theory & Cryptography

## Applied Computing

- Computer Graphics
- Cloud Computing
- Software Engineering
- Machine Learning
- Data Communication

## Mathematics

- Discrete Mathematics
- Probability & Statistics
- Differential Equations
- Linear Algebra

## Humanities

- Economics (Microeconomics & Macroeconomics)
- Introduction to Linguistics
- Language, Cognition & Culture

# POSITIONS OF RESPONSIBILITY

## The Mind Matters Workshop | VOLUNTEER

Cognitive Science and Linguistics Workshop | 2016

- Lead the web operation team of 4 members.

## **Yuvaan Festival | ORGANIZING AND SPONSORSHIP HEAD**

Annual Cultural Festival at IIITG | 2016

- As sponsorship and organizing head I communicate and negotiate with corporate houses in different sectors to explore marketing possibilities for the festival.
- Spearheaded all volunteers for fest and teams.
- Also lead the web operation team.

## EXTRA-CURRICULAR ACTIVITIES

- Space and Alien History Enthusiast
- Free hand sketching
- Entrepreneurship

## REFERENCES

### **Dr. Ferdous A Barbhuiya**

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### **Kuntal Dey**

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