

# Kumar AYUSH

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*Seeking learning opportunity for May-July 2016*

## Awards and Achievements

- Jul 2013 **Silver Medal** at International Olympiad on Astronomy & Astrophysics, Greece
- Oct 2012 **Silver Medal** at International Astronomy Olympiad, Korea
- 2013 Recipient of **Kishore Vaigyanik Protsahan Yojana Scholarship** awarded by the Govt. of India to motivate students interested in research
- 2014 Awarded **All Rounder Trophy** at School Farewell for overall excellence
- 2012–2013 Felicitated twice with the **Infosys Award** for Olympiad Medalists
- 2012–2014 **Olympiad Orientation–Cum–Selection Camp – Astronomy.**
  - Awarded the Best Answer to a Challenging Data Analysis Question in 2012
  - Awarded the Best Observer in 2013
  - Awarded the Best Answer to a Challenging Theoretical Question in 2014
- 2010 Holder of **NTSE Scholarship** awarded by NCERT, Govt. of India

## Research Experience

- Winter 2013 **An X-Ray Study of Black Hole Candidate X Norma X-1,**  
*NIUS – Astronomy*, Prof. Manojendu Choudhury, CEBS – UM.
  - Analyzed timing information from RXTE to detect quasi-periodic oscillations
  - Fitted obtained spectra & observed unusual oscillations in the inner radius
- Winter 2012 **Estimation of Photometric Redshifts Using ML Techniques,**  
*NIUS – Astronomy*, Prof. Ninan Sajeeth Philip, IUCAA, Pune.
  - Estimated red shifts based on SDSS color data using artificial neural networks
  - Compared the performance of neural network against other ML techniques

## Leadership & Organizational Experience

- Summer 2015 **Indian National Astronomy Olympiad Program 2015,**  
*Resource Person for the selection of the Indian teams to IAO and IOAA.*
  - Student facilitator for mentoring and evaluating students
  - Generated and evaluated questions for the selection procedure
  - IOAA Team India got best result in 9 years, topped the medal tally and won team competition
- Spring 2015 **IPhO–Rum, 46th IPhO,**  
*International Physics Olympiad 2015, Mumbai, India.*
  - Created a first of its kind browser application to be used during academic meetings with functionalities such as file management, voting & feedback
  - Worked in the academic logistics team during the Olympiad helping with a variety of proceedings
- 2015-16 **Convener, Web n Coding Club,** IIT Bombay

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## Web & Coding Experience

- Fall **AviPulse**,  
2014 *A non-profit initiative to build the world's first bird identification system.*  
○ Implement a developed sound processing algorithm to identify the bird species  
○ Create a web tool which takes the bird voice as the input
- 2014–2015 **Gruppo Leopardo Inc**,  
[www.gruppoleopardo.com](http://www.gruppoleopardo.com) / [www.grandimagazzinibomboniere.it](http://www.grandimagazzinibomboniere.it).  
○ Designed & maintained e-commerce websites for the company based in Italy
- Spring **PNR Predictor**,  
2014 *An app as a part of a hackathon, code.fun.do, Microsoft.*  
○ Built an app which predicts probability of ticket confirmation based on an statistical model  
○ Runner up at institute level and participated in Finalists' Forum
- Fall **Video Attendance**,  
2014 *Face Detection using Hidden Markov Models and Discrete Cosine Transforms*,  
Prof. D.B. Phatak, IIT, Bombay.  
○ Programmed detection of faces in a video capture for marking the attendance of the student  
○ Learnt about hidden Markov Models and implemented a prototype based on DCT

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## Miscellaneous Projects

- Fall **Kelvin Water Drop**, Maths n' Physics Club, IIT, Bombay.  
2014 ○ Built a working model of the Kelvin Water Drop experiment  
○ Demonstrated before an audience followed by a discussion on concepts involved
- 2013 **Science Fun**, Delhi Public School, Jodhpur.  
○ Designed and demonstrated a magic show based on everyday science, highlighting the simple science that lies behind the most mysterious phenomena.

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## Computer skills

- Basic MATLAB, Photoshop, Illustrator, C#  
Intermediate L<sup>A</sup>T<sub>E</sub>X, OpenOffice, Linux, Microsoft Windows, OpenCV  
Advanced Python, C/C++, HTML, JavaScript, PHP

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## Courses Undertaken

- CSE** Introduction to Programming, Networks  
**Physics** Electricity and Magnetism, Quantum Physics and Applications, Classical Mechanics, Non Linear Dynamics, Special Theory of Relativity  
**Maths** Calculus, Linear Algebra, Ordinary Differential Equations, Complex Analysis

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## Languages

- English **Near Native** *excellent command*  
German **Basic** *learning*

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## Interests

- Music  
- Cooking  
- Travel  
- Reading