SAARTHAK SACHDEVA

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education

Rukmini Devi Public School
Apr 2002 - May 2016

UNDERGRADUATE ADMISSION FOR COMPUTER SCIENCE OFFERED BY

- University of Washington, Seattle
- University of Waterloo
- University of California, Berkeley (AWAITED)

languages

English	Fluent
Hindi	Fluent
French	Fluent
German	Fluent

about

Saarthak is an aspiring computer science researcher from Delhi, India. He is fascinated by artificial intelligence and machine learning, and hopes to make a contribution to the field. He enjoys working on research projects and endeavors to make a difference through them. As an inquisitive person, he finds delight in problem solving and quizzing, and is passionate about learning.

experience

2015 Internship at **Wolfram Research**
Worked under Dr. Sebastian Bodenstein in the **Advanced Research Group** (ARG) and developed an artificial intelligence based system that can answer questions on images for the visually impaired.

2015 **EarlyDetect**, Co-Founder and CEO
A startup that makes based cancerous tumor detection systems based on classification of photographs using neural networks available to the masses through smartphone apps.
Developed the technology and led a team of student developers from Stanford and Columbia.

2014 **Instacharity**, Developer and CTO
Built and maintain the codebase for the web platform and overlook the day-to-day operations of the nonprofit organization that connects the underprivileged with potential donors.

awards & honors

2015 Google Science Fair 2015 Finalist
Project on early diagnosis of cancer using machine learning selected amongst top 9 projects in the world in computer science, and top 90 overall.

2015 Intel International Science and Engineering Fair Semi-Finalist

2015 Winner, TCS IT Wiz Quiz Delhi 2015

2015 Winner, Hindustan Times Inquizitive G.K. Quiz 2015

2015 LIC Student of the Year Award Winner

2015 Finalist, Indian National Olympiad in Informatics

2015 Qualified for final team selection, Indian Philosophy Olympiad

2015 Only student from India selected for Wolfram Tech Innovation Summer Program, with 100% scholarship.

2014 Finalist, Indian National Olympiad in Informatics

awards & honors continued

- 2014 — National Finalist, CBSE Science Exhibition 2014
- 2014 — Winner, CBSE Cryptic Crossword Contest
- 2013 — National Finalist, CBSE Science Exhibition 2013
- 2013 — Presented with the INSPIRE Award 2013 by Dept. of Science and Technology
- 2012 — Gold Medallist with International Rank 5, International Informatics Olympiad
- 2012-15 — Winner, All-Rounder Award
- 2012-16 — Winner at 40+ State and Regional Level G.K. and Science Quiz Competitions

research projects

Portfolio: http://hackpert.me/portfolio

2016 — Answering questions on images using artificial intelligence
Developed a software based on recurrent neural networks that can answer questions on photographs with an 82% accuracy, as a part of internship at Wolfram Research Inc.

2016 — Automatic Devanagri script handwriting recognition
Conventional handwriting recognition techniques do not work efficiently on Devanagri because of the similarities in letters like \ka (क) and \pha (फ). I developed a residual neural network based algorithm that can recognize handwritten text in Devanargi with a 94% accuracy, which is significantly better than previous attempts.

2016 — Onboard positioning in drone swarms
Developed a hardware attachment and a novel algorithm to enable flying machines like drones to locate themselves in swarms without use any external positioning aid like GPS or radio signals.

2015 — Early diagnosis of cancer using machine learning
Performed research on the use of convolutional neural networks to diagnose cancerous tumors in early stages from photographs with an accuracy of more than 95%, which is better than human doctors. To be published in *Journal of Machine Learning Research*.

2015 — Automated summarization of long pieces of text
Built an automatic text summarizer that uses an algorithm inspired from Google's PageRank that uses the term frequency-inverse document frequency to generate a summary webpage containing relevant text.

2015 — English accent classification using neural networks
Performed research on computerized classification of spoken English accents with different machine learning techniques on audio data from internet radio talk shows, and built a 23-way classifier with an accuracy of about 90%. Project undertaken as a part of Wolfram Tech Innovation Summer Programme 2015 in Boston, MA.

2015 — Phase transitions in 2D and 3D Ising Models
Investigated anomalous behavior of 2D and 3D Ising models while undergoing phase transitions in the presence of a magnetic field using Monte-Carlo simulations.

2014 — A novel biodegradable plastic made from organic waste
Invented a new type of starch-based bio-plastic made completely from organic waste matter and detritus like fruit peels, corn husk etc.

2014 — Mathematically modeling the spread of epidemics
Built an app based on SMS to help track the spread of communicable diseases like Ebola across the country and modeled transmission behavior.

2013 — On the use of limonene as an alternative natural pesticide
Performed research on the effects of limonene (a compound in *Neem* and orange peels) on crop growth as compared to conventional pesticides and found that it is much more effective and significantly less harmful to plants and humans.