SAARTHAK SACHDEVA



contact

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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

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

National Finalist, CBSE Science Exhibition 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

Winner at 40+ State and Regional Level G.K. and Science Quiz Competitions



2012-16

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 (ず) and \pha (ず). 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

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.