

Soumya Mishra

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Summary

1. Second place at UVAMath Majors of America Tournament for High Schools

1. Excellent math and programming skills

1. 3rd Place in category at RSEF with 5 special awards

1. Intern at Janelia (HHMI)

1. 35 on the ACT and 1510 on the SAT

1. 4.44 GPA

1. Second place at Odyssey of the Mind state level - proceeded onto Worlds' Competition

1. Resilient character with unique philosophies shaped by experiences

Education

Aug 2015 - Present

Freedom High School

25450 Riding Center Drive,
South Riding, VA20152
Grade 11

I also attend the Academy of Science and currently have a 4.44 GPA. I am taking multiple AP classes at the time to maintain my course rigor and to demonstrate full mastery of the skills I am learning. Though many of these classes are tough for me, I find a way to understand the material, whether it takes me a few hours or a few weeks. I will struggle with the problem at hand until I understand every concept related to that problem.

Volunteer Service

May 2018 - Present

One of eight high schooler lesson planner

Online
WISE UP - 2 RISE UP
Grade 11
10 Hrs/Week

Help creating lesson plans for 7 weeks of math that are aligned with the SOL standards for 8th graders. This requires leadership abilities to be able to come up with a curricula that contains everything that 8th graders will need to learn in

math. I need to make sure that they can easily understand what is being taught and I need to teach them to do well on the quizzes.

Jan 2017 - Jun 2017 **Helped math olympiad team build math skills**

J. Michael Lunsford
Math Olympiad
Grade 10
5 Hrs/Week
Total Hours: 100

Nov 2016 - Nov 2016 **Student assistant at precinct during election day**

24950 Riding Center Dr,
South Riding, VA20152
Loudoun County Office of
Elections
Grade 10
8 Hrs/Week
Total Hours: 8

Sep 2016 - Present **Tutor**

24600 Millstream Dr, Stone
Ridge, VA20105
GIVE Tutoring
Grade 10, 11
2 Hrs/Week
Total Hours: 200

GIVE tutoring is a tutoring program at the Gumspring Library

Jun 2015 - Present **Tutor**

Grade 9, 10, 11

4 Hrs/Week

Every summer I have been tutoring young children in math and programming. I help to learn how to think through problems using logic and then learning the theoretical coding. I am teaching them python and java right now because these are the simplest languages to learn by far.

May 2015 - Present

Tutoring Children near Home for free
Grade 9, 10, 11
5 Hrs/Week

Jan 2015 - Present

Performer
India International School
Grade 8, 9, 10, 11
4 Hrs/Week

I have been performing as a solo singer at many cultural performances also. My performances usually include Hindustani classical singing. However, I am a versatile singer and sing various genres of music. I have performed at senior centers during the summer as well.

Jan 2015 - Present

Performer
All over Virginia
Nrityaki Dance Academy
Grade 8, 9, 10, 11

5 Hrs/Week

My team and I have performed at various competitions and cultural events over the past couple of years. We mainly focus on Indian classical dancing (Kathak) and also incorporate western dancing as well as Bollywood dances in our performances to appeal to a broad range of audiences. My team and I have always received 1st place at our competitions because we all work hard to perfect these dances.

Awards

Mar 2018

3rd place in Systems Software category at RSEF Grade 11

I entered RSEF with my research project which can help revolutionize how big companies and institutions deal with data.

Mar 2018

RSEF - Received Aerospace Corporation Award Grade 11

Mar 2018

RSEF - Received Institute of Electrical and Electronics Engineers Tech Excellence Award

Mar 2018	RSEF - Received MIT Club of Washington DC Award of Excellence Grade 11 <i>Only 3 juniors out of all projects that entered RSEF received prize</i>
Mar 2018	RSEF - Received Mu Alpha Theta award Grade 11 <i>Only 2 participants out of all juniors and seniors at competition received the award</i>
Mar 2018	RSEF - Received US Air Force Award Grade 11
Aug 2017	Junior Diploma in Hindustani classical singing Grade 8, 9, 10, 11 <i>Just as with dance, I have to an international exam for this classical singing. I have also received the highest marks in my batch of singers in this area and have always passed as the top of my class. I am on track to receiving my senior diploma next year.</i>

Aug 2017

Senior Diploma in Kathak
Grade 8, 9, 10, 11

Every year I have to take an international exam in classical indian dancing (Kathak) where I compete with people all over the world to receive the highest marks. In my batch of dancing in this area, I have obtained the highest scores all four years and have also received my senior diploma. I am on track to getting my first degree in senior year of high school.

Mar 2017

Second place at UVA Math Majors of America Tournament for High Schools
Grade 10

Apr 2015

Second place at Odyssey of the Mind state level - proceeded onto Worlds' Competition
Grade 9

Skills/Academic Achievement

Jun 2018

Internship at HHMI Janelia Campus to do research with leading scientists
Grade 11
Skill Level: advanced

Out of many applicants, only 9 high school students were accepted to intern at HHMI - Janelia campus this summer. I am one of these students. I am going to research with scientists about proteins and predictive analysis. My paper is on bioRxiv and will be sent for review in the next couple of weeks.

May 2018

Computational Modeling

Grade 10, 11

Skill Level: intermediate

I was one of the eleven students from the junior and senior class of 130 people to be selected to represent the Academy of Science at the Moody's Math Modelling Competition. This is a competition where the teams are given 14 continuous hours to solve a problem using math modelling and the teams must come up with workable solutions to solve the problem. Usually, the problems we must solve are related to current issues in the world; so, it is a way to apply the skills we have honed to real life applications. It provides the competitors an experience of using math modelling to solve a problem in the real world. As of now, I have

done a couple of my own mini projects to figure out how to accurately model data sets and how to analyze them accurately. I just recently started getting into machine learning and neural networks. I have been using them to analyze some of my data, but I still need to learn much more to implement them in my research project.

Mar 2018

Computer Programming Skills

Grade 6, 7, 8, 9, 10, 11, 12

Skill Level: advanced

I am an advanced programmer in Java, HTML, CSS, C++, R , Python, Mathematica and Scala. I am also currently learning machine learning as well as Apache Spark and Hadoop MapReduce for my research project, which involves creating a new sorting algorithm in Java using statistical analysis to make processing Big Data faster.

Aug 2016

Creation of StatSort

Grade 10, 11, 12

Skill Level: advanced

For my Academy of Science research project, I devised a new sorting algorithm - StatSort - that has a linear

worst case time complexity and works 200% more efficient than merge sort and quick sort and 1000% more efficient than bucket sort.

Jan 2015

Math

Grade 6, 7, 8, 9, 10, 11, 12
Skill Level: advanced

I have derived all the formulas I use today to understand the foundation of how to approach different problems. Because I have written proofs for these, if the question being asked is a spin-off of those concepts based off that formula, I can manipulate the formula, then, to solve the question. Furthermore, the more I learn in my math classes, the more I can relate everything to what I have learned previously. I am able to write mathematical proofs, such as those that were asked during the UVA MMATHS competition to determine the placement in the individual round.

Present

Research/Experiment

Grade
Skill Level: advanced

Labs and experiments are all integral parts of science courses and due to great

frequency of the number of labs we do at AOS, I have started to do my own experiments throughout daily life. For example, I have eczema, a chronic skin condition, and a rather severe case of it. If I eat something I am allergic to, I will get rashes and cuts and whatnot. Because in middle school this really affected all aspects of my life, I decided to perform experiments of my own to determine how to control my eczema, and more importantly, how to know when my skin is going to react. I first went to a dermatologist and talked to her about my condition and I took an allergy test. The results were rather peculiar for I was allergic to almost everything they tested. I figured I would have to figure out my own allergies. I hypothesized characteristics of the food that could cause my eczema to get triggered. Then, I created different scales of the acidity of the food I ate (like oranges and fruits), the amount of protein in the food, the number of calories in the food, and similar aspects of what I was eating on a daily basis to figure out how my body reacted to foods (on a scale from 1 to 10 – ok to a lot of rashes and irritation on skin) which were different

values on the scales. Then, I graphed these and found correlations between my eczema and the foods I ate. Since then, I have avoided those foods or have eaten them in limited amounts and my eczema has been controlled ever since. Furthermore, I have embarked on the journey to completing my own research project which is to create a faster sorting algorithm by using the distribution of the data sets to sort the numbers. The estimated worst case of this sorting algorithm is $O(n)$, which is optimal for IT systems processing big data in prestigious institutions.

Music/Artistic Achievement

Jan 2015 - Present

Hindustani Classical Dance - Kathak

Grade 9, 10, 11

5 Hrs/Week

Total Hours: 600

I recently earned my diploma in Kathak after learning the theory of the different components of the dance and its beats as well as learning the various dances and rhythmic foot work for 4 years. I am on track to earning my undergraduate degree after

2 years. To get this diploma, I had to take one exam each year to demonstrate full mastery of the theory of dance I learned that year as well as the various dances and foot work at different tempos and different rhythms. Each year, I received one of the highest scores of those who took the test at the academy I learn kathak at. Out of everyone who took the test internationally, I was in the top 10%.

Sep 2014 - Present

**Hindustani Classical
Singing**

Grade 8, 9, 10, 11

3 Hrs/Week

Total Hours: 420

I have completed my matriculation/O-level in Hindustani classical singing. For these four years, I have been learning the theory of classical singing, which includes the different rhythmic patterns and combinations of notes that create the types of melodies prevalent in Hindustani classical music. I have also mastered the practical section in which I have to sing these different melodies and their compositions. These melodies and compositions include various tempos in

which one has to modulate one's voice quickly and accurately. Out of everyone who took the test at the school I learn music, I was the highest scorer. Out of everyone who took the test internationally, I was one of the top 10% of scorers. I am on track to receiving my diploma in four years.

Aug 2013 - Present

Acoustic Guitar

Grade 7, 8, 9, 10, 11

2 Hrs/Week

Total Hours: 500

I was one of the five people from school accepted into the Regional Governor's School at PAVAN. To get into this governor's school, I had to practice more than 2 hours per week to perfect my left-hand fingerstyle and my right-hand chord and note formation. I had to practice many tough, advanced pieces that included lines of sixteenth notes and different rhythmic patterns within the pieces themselves. I was accustomed to practicing pieces above my skill level because to get into All County Guitar in eighth grade, I had to self-learn many techniques to really impress the judges with my skills. I was accepted into All

County Guitar as one of the four people to get accepted from my school. I have been selected as a soloist in almost all of my guitar concerts since 7th grade. Unfortunately, due to some scheduling conflicts in tenth grade and eleventh grade, I could not continue guitar after ninth grade; however, I still am learning to master my skills and learning new difficult compositions.

Athletic Achievement

Jun 2016 - Jun 2017 **Varsity Tennis**
Grade 9, 10
10 Hrs/Week
Total Hours: 240

Conference 22 Champions in ninth grade and tenth grade Played at position 6 and at other positions as substitute

Leadership

Co-President of the India International School Student Committee (IIS)

Led the writing team of the Odyssey of the Mind Team to creating a phenomenal story

Co-coach Cardinal Ridge Elementary Math Olympiad Team

Led Programming Team of FLL Team to achieve
2nd Place for Programming