

Dhruv Patel

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Professional Achievements

- University of Maryland, College Park, A. James Clark School of Engineering, Fischell Department of Bioengineering
 - Assembled microfluidic devices for magnetic nanoparticle testing in variable tesla fields for enhanced aggregation and flocculation size, velocity, and perception
 - Designed (using Autodesk Inventor) and printed Inner Ear (Cochlea) Model for enhanced particle perception, aggregation mechanics, and magnetic configuration
- Selected to the National Academy of Future Physicians and Medical Scientists
 - For outstanding achievement, leadership potential, and determination to serve humanity in the field of medicine.
- Walter Reed Army Institute of Research (Gains in the Education and Mathematics)
 - Used engineering techniques, principles, and protocols to:
 - Propose, design, and build a high torque-powered crane that could lift large amounts of weights.
 - We used advanced electronic modeling software in order to efficiently design the robot
- Medical Unit at Civil Air Patrol (United States Air Force Auxiliary) Tri-Wing Encampment 2014
 - Awarded Honor Mission Support Non-Commissioned Officer, Tri Wing Encampment 2014
 - Provided emergency assistance to attendees
 - Directly monitored the health and safety of all cadets in the assigned squadron at all times.
 - Maintained Cadet Medical Records
- Howard Hughes Medical Institute, and College of Computer, Mathematical, and Natural Sciences: Biomedical Science Internship
 - Through the jump start program:
 - Extract, digest and analyze DNA sequences using electrophoresis
 - Use RNAi (interference) to silence a genome (Particularly the presence of Green Fluorescent Protein)
 - Used procedures to slice a brain, and reconstruct it on advanced electronic modeling software (In order to take precise measurements, and calculations)
- Sea Perch Capstone: Naval Surface Warfare Center:
 - Used knowledge of **circuitry and engineering** to design and engineer an underwater remote-controlled submarine
 - Lead team to competition
 - Utilized **advanced electronic engineering** modeling techniques to design and test submarines
 - Supervised by Office of Naval Research
- First Robotics
 - Designed multi-thousand dollar robot using electronic modeling software
- Appointed to the Maryland Youth Advisory Council (MYAC) by Governor Martin O' Malley
 - Position on the Governor's Executive Board of the Organization
 - Recommended legislative proposals
 - Provided annual reports to Governor, and General Assembly
 - Provided testimony before legislative bodies on youth issues (College & Career Readiness, Financial Aid, etc...)
- Environmental Engineering:
 - Received 1st prize and stipend from the Rotary Club of Rockville at Science Montgomery

- Utilized scientific method to design and engineer a device
- Device used mechanical and hydroelectric principles to harness electricity by drain water
- Honor Societies
 - National Junior Honor Society
 - National Honor Society
 - National Science Honor Society
- Entered finals as Top 32 Teams in County-wide Debate:
 - **Utilized public speaking, and critical thinking skills** to win more than a majority of debates on international diplomatic topics
- Member of the Biology Club
 - A group of students who share an interest in Biology that enter various National Biology competitions related to molecular biology, life sciences, etc...
 - Participated in a Biology International Competition sponsored by the University of Toronto
- Maryland State Envirothon 2014
 - Placed in Top 20 in the County by using knowledge of Ecology, Biology, and Geology in field/written examinations
- SGA Class of 2016:
 - Elected, and serving SGA Vice President for 2013-2015
 - Utilized financial and leadership skills to triple the spending budget for the school
- Science Olympiad:
 - 2nd place in **Fermi Questions** at Regional Championships in 2013
 - 2nd place in **Microbe Mission** at State Championships in 2012
 - 3rd place in **Ecology** at State Championships in 2011
 - 3rd place in **Dynamic Planet** at Regional Championships in 2012
 - 3rd place in **Experimental Design** at Regional Championships in 2012
 - 2nd place in **Microbe Mission** at Regional Championships in 2011
- Civil Air Patrol (United States Air Force Auxiliary):
 - **Awarded “Jimmy Doolittle” Achievement/Promotion** to the ranks of Cadet Senior Master Sergeant
 - Displayed a commitment to integrity, volunteer service, excellence, respect, professionalism, and enforcement of standards
 - Leadership role as the flight commander of a squadron of cadets
 - United States Air Force Auxiliary Honor Guard
- Participated in Mock Trial
 - Developed organizational, and research skills while having to utilize public speaking strategies to persuade a judge
- Volunteered at Rehabilitation Center at Ashbury Village
 - Gained insightful experience in the physiological rehabilitation field, while serving senior citizens
- Chesapeake Bay Foundation (CBF)
 - A team of students that work together to save the Chesapeake Bay through education, advocacy, litigation, and restoration

Skills

- System Skills: Windows XP/7/8
- Software Skills: Autodesk Inventor, CAD, Mathematica, ArcGIS (Geoinformational Data Systems Analysis), Robo-Lab
- Computer Languages: Visual Basic, GUI-Based

- Leadership and interpersonal skills
- Data analysis and production

Education

- Parkland Magnet Middle School for Aerospace Technology:
 - Project Administration for 9 week Engineering Capstone in Engineering course from Rochester Institute of Technology
 - Outstanding Academic Achievement Award for; Honors Physics, Aerospace Design & Technology, Unmanned Space Exploration, Comparative Planetology and Orbital Mechanics
- Poolesville High School, a Whole School Magnet (Ranked 7th STEM School in the Nation, and Top School in Maryland)
 - Global Ecology (Magnet) Studies Program
 - Very rigorous and provides students with the knowledge and understanding of the scientific, cultural, social, political, economic, and technological conditions that affect the quality of life on our planet.
 - Relevant **college** coursework in, and will continue to excel in; Biology, Introduction to Engineering Design, Chemistry, Biochemistry, Anatomy & Physiology, Genetics, Physics, Environmental Science, Cell Physiology
- Kumon:
 - Achieved rank of **298 out of 16,119** students in Advanced Mathematics (**Top 2 percentile**)