

**AADITYA BHARAT SINGH**  
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## EDUCATION AND ACADEMIC ACHIEVEMENTS

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- Narayana PU College, Bengaluru, India** Apr'23-Present
- Appearing for Grade 12 CBSE exams with subjects English, Physics, Chemistry, Mathematics, and Computer Science.
- Vidyashilp Academy, Bengaluru, India** Jun'18-Mar'23
- Secured 92.4% in Grade 10 examinations under the ICSE Board.
  - Awarded a Letter of Appreciation by the Principal for Excellence in CS in Grade 10.

## ONLINE COURSES

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- Introduction to Mathematical Thinking, Dr. Keith Devlin (Stanford, Coursera)** July'24
- Spent approximately 108 hours to complete. This course focuses on mathematical reasoning and problem-solving, learning techniques for tackling complex problems systematically, with a focus on logical analysis, rigorous definitions, and precision in arguments.
  - Gained skills in abstract reasoning, proofs, and effective communication of complex mathematical ideas, improving clarity and effectiveness in presenting mathematical concepts.
- Arduino Step by Step: Getting Started, Dr. Peter Dalmaris** Apr'24
- Gained a solid understanding of Arduino programming, electronic components, and circuit design through projects like LED blinkers, temperature sensors, and simple robots.
- Mechanics: Motion, Forces, Energy, and Gravity, from Particles to Planets, Prof. Joe Wolfe, The University of New South Wales, Coursera** Mar'24
- Covered fundamentals of classical mechanics, focusing on the motion of particles and planets.
  - Explored concepts such as Newton's laws of motion, conservation of energy and momentum, and gravitational forces, applying them to various scenarios.
- Introduction to Engineering Mechanics, Dr. Wayne Whiteman, Georgia Tech., Coursera** Apr'24
- Learned static equilibrium principles, including forces, moments, and structure analysis and application of these concepts to real-world engineering scenarios.
- Mechanics of Materials I: Fundamentals of Stress & Strain and Axial Loading, Dr. Wayne Whiteman, Georgia Institute of Technology, Coursera** Apr'24
- Received an introduction to principles, analyzing and predicting material behaviour under axial loads, and established a foundation for advanced study in the mechanics of materials.

## RESEARCH EXPERIENCE

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- The Transformative Landscape of AI-Powered Robotics** May'24-Jun'24
- Wrote this paper intending to analyze and discuss topics surrounding innovations in AI and Robotics. Specifically Industry Leaders and Applications, Emerging Technologies, Soft Robotics, and Biomimicry, and Ethical Considerations & collaboration.
  - Delved into the significant advancements and innovations that have taken place because of **the fusion of AI and Robotics** while looking into the **ethical considerations** including bias mitigation and transparency in AI decision-making.
  - Explored the development of technologies like foundational models, LLMs, computer vision, and emotional AI which are crucial for the future of robotics and lead toward the long-term goal of achieving Artificial General Intelligence (AGI). The paper was published in the International Journal of Current Science: <https://rjpn.org/ijcpub/viewpaperforall.php?paper=IJCSP24B1274>.
- Comparison & Analysis Of AMD Chips & Intel Chips** Apr'24-May'24
- Wrote this paper discussing the significance of computer chips, particularly those produced by Intel and AMD, intending to provide a comprehensive understanding of the chip market.
  - Explored differences between Intel and AMD chips regarding performance, features, and market presence, highlighting their strengths and weaknesses.
  - Delved into industries where each brand is commonly used, the advantages and disadvantages of choosing AMD or Intel chips for industrial applications were outlined.
  - The paper was published in the International Journal of Current Science: <https://rjpn.org/ijcpub/viewpaperforall.php?paper=IJCSP24B1197>

## EXTRACURRICULAR ACTIVITIES AND ACHIEVEMENTS

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- ATAL Tinkering Labs@Vidyashilp Academy** Jun'19 - Mar'23
- Delved into hands-on projects, crafted a spot welding machine from the transformer salvaged from an old microwave, and developed a Raspberry Pi-based smart speaker using customized Alexa code

- Participated in a local competition where the team was tasked with coding a smart rainwater and irrigation system combining traditional rainwater harvesting methods with moisture sensors and an algorithm that irrigates according to weather forecasts.
- Secured 9<sup>th</sup> position in the competition out of 200 teams from Bangalore.

#### **Arduino & EV3**

Apr'18 -Present

- Designed and built innovative projects, including a self-driving car, self-balancing robot, RFID door lock, automatic plant watering system with moisture sensors, and a weather station displaying real-time environmental data by integrating Arduino chips and sensors into LEGO structures.
- Engineered a three-segment, three-fingered mechatronic arm controlled by a joystick, demonstrating proficiency in advanced robotics and mechanical design.

#### **Indian National Cadet Corps NCC**

Jun'21 - Dec'22

- Became a member of the air division at the Indian National Cadet Corps during 9<sup>th</sup> & 10<sup>th</sup> grades.
- Participated in rifle training learning the intricacies of rifle maintenance and cleaning.
- Sharpened shooting skills at an army firing range.
- Earned a Division A Certificate based on performance throughout the course.

#### **LEADERSHIP EXPERIENCE**

##### **Indian Robo Parade, Vidyashilp Academy**

Dec'20-Jan'21

- Participated in the Indian Robo Parade Academy, leading a team of three to the finals.
- Constructed robots using LEGO EV3 kit to participate in challenges like robot parade and secured 2<sup>nd</sup> position out of 20 teams in the competition.

##### **Model Parliament, Vidyashilp Academy**

Jul'21

- Participated in 'Model Parliament' as Amit Shah, India's Minister of Home Affairs, and drafted a key bill reassessing the role of AFSPA (Armed Forces Special Powers Act) in modern governance.

##### **Model United Nations, Vidyashilp Academy**

Sept'22

- Represented Anthony J. Blinken, US Secretary of State, in deliberations on 'China's recent expansionist steps concerning Taiwan and the Indo-Pacific region, and its implications for India's foreign policies.' Formed a coalition & presented a treaty that garnered widespread support.
- Awarded 'Best Speaker' for contributions to committee discussions and effective collaboration in addressing global issues during the Model United Nations session.

##### **Hacktivism by Politechs**

Aug'24

- Led the development of Lifeline Unlimited, an EMR app designed to streamline patient data management, focusing on user-friendly navigation, AI-generated reminders, and detailed views of medical history.
- Implemented emergency access features for first responders, enabling secure retrieval of medical records via QR code, NFC, or manual entry, with enhanced data security through automatic logouts.

#### **WORK EXPERIENCE AND COMMUNITY SERVICE**

##### **App Developer and Volunteer, Jala Poshan Foundation**

Mar'24 - Present

- Volunteering for the NGO dedicated to conserving Jakkur Lake and its diverse ecosystems in Bengaluru.
- Developed an application for the organization aiming to streamline the process of registering and logging volunteer activities at the lake, making it easier to track each volunteer's contributions.
- The application was developed using Flutter and is set to be available on both the Apple App Store and Google Play Store.

##### **Student Intern, Bengaluru International Airport Ltd**

Jun'24 - Jul'24

- Analysed existing air pollution and noise management systems to identify improvement areas.
- Collaborated with the team to develop a report outlining potential enhancements to current systems.
- I researched air quality and noise mitigation strategies implemented at other global airports and possible ways to implement similar infrastructure at BIAL.
- Contributed to the development of innovative solutions for optimizing airport environmental impact.

##### **Intern, Comrado Aerospace (ARTPARK@IISc (Indian Institute of Science)), Bengaluru**

- Contributed to the planning, development, and implementation of obstacle avoidance systems for autonomous drones, enhancing navigation and safety capabilities. Collaborated with CEO and mentor Ansar H on innovative AI and robotics projects, applying theoretical knowledge from coding and robotics courses to address real-world challenges.
- Designed and coded navigation systems focusing on path planning, sensor integration, and real-time decision-making to effectively avoid obstacles during flight.
- Gained hands-on experience with advanced AI technologies, particularly in drone autonomy and object recognition, while enhancing problem-solving and coding skills by tackling technical challenges in autonomous systems.