



# Dhruva Shaw

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## ● ABOUT ME

Innovative and results-driven Robotics and Automation Engineer-in-training with a strong foundation in merging hardware and software to develop impactful, real-world solutions. Skilled in Python (including Discord.py), full-stack web development, and automation systems.

Experienced in designing and developing AI models early Osteoporosis detection, mind-controlled bionic prosthetics, and workflow optimization tools. Proficient with microcontroller ecosystems (Arduino, ESP32, Raspberry Pi), and knowledgeable in machine learning, IoT, and industrial automation.

Actively contributing to robotics education and competition frameworks through India STEM Foundation and World Robot Olympiad (WRO) India. Leading the ISF STEM Teacher Training Program and developing scalable curriculum models to train 1,000+ teachers across India.

Inventor of Adverse — an AI-powered Open-Source Intelligence (OSINT) system for digital identity verification and cyber surveillance, currently published as a patent by the Indian Patent Office. Recognized with honors such as the IEEE SPS Scholarship and multiple accolades in technical competitions. Passionate about bridging research with deployment through open-source collaboration, educational leadership, and standards development in robotics and automation.

## ● EDUCATION AND TRAINING

01/08/2021 – 31/05/2025 Jalandhar, India

**BACHELORS OF TECHNOLOGY IN ROBOTICS AND AUTOMATION** Lovely Professional University

## ● PATENTS

02/03/2025

**Adverse: Automated Open-Source Intelligence System for Digital Identity Verification and Cyber Surveillance**

Patent Application No: **202531018252**

Adverse is an advanced open-source intelligence (OSINT) and facial recognition system designed to aggregate, analyze, and verify publicly available digital information. The system integrates AI driven search algorithms, facial comparison technology, and passive reconnaissance methods to extract relevant data from social media platforms, search engines, and publicly accessible CCTV networks. Utilizing a multi-layered search architecture,

Adverse enables users to input an individual's name or image to retrieve corresponding digital footprints, perform cross-platform identity verification, and enhance investigative capabilities. The face recognition module employs a threshold-based comparison algorithm to detect and match images sourced from the internet, improving accuracy and identity validation. Additionally, the system incorporates automated dorking query generation, subdomain reconnaissance, and real-time online public cctv data retrieval, ensuring efficient data acquisition and analysis. Adverse is designed to support government intelligence agencies, cybersecurity firms, and law enforcement bodies in conducting digital investigations, fraud detection, and threat assessment with a high degree of precision.

Link <https://dhruvashaw.in/adverse>

## ● PUBLICATIONS

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2024

**[Mind Controlled Bionic Arm with Sense of Touch \[8 class version\]](#)**

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2024

**[Book of Abstracts 39th IEC \[Mind Control Bionic Arm with Sense of Touch\]](#)**

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## ● HONOURS AND AWARDS

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01/11/2024

**IEEE SPS Scholarship – IEEE Signal Processing Society**

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The SPS Scholarship Program recognizes students who have expressed interest and commitment to pursuing signal processing education and real-world career experiences. This year, 45 outstanding students were selected from a large field of more than 250 qualified applicants worldwide.

**Links** <https://www.credential.net/69acd99f-d7f8-48d9-a6d5-1f86b3fb2feb> | <https://signalprocessingsociety.org/gallery/2024-sps-scholarship-recipients>

16/03/2024

**2nd best poster at EE Research Day at IIT Ropar – Indian Institute of Technology, Ropar**

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The poster was titled "Mind Controlled Bionic Arm with Sense of Touch"the description...

**Link** [https://www.researchgate.net/publication/379267849\\_Mind\\_Controlled\\_Bionic\\_Arm\\_with\\_Sense\\_of\\_Touch](https://www.researchgate.net/publication/379267849_Mind_Controlled_Bionic_Arm_with_Sense_of_Touch)

## ● VOLUNTEERING

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03/12/2023 – CURRENT IEEE Student Branch Lovely Professional University

**Secretary**

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01/2023 – 02/2023 Bureau of Indian Standards

**Awareness Campaign Intern**

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Here we had to make atleast 100 households aware about the BIS app and the importance of standardization and in return we were given INR 1500 as a honorium.

09/2021 – 03/2023

**National Cadet Corps**

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I served as a Third-Year Cadet in the LPU NCC (National Cadet Corps), actively participating in military drills, leadership training, and physical endurance exercises.

05/2021 – 10/2021 D V Singh Foundation for Child Development

**Project Intern**

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I raised funds to support digital learning for the children living in slums in Jalandhar. Total funds raised was around INR 7000

## ● WORK EXPERIENCE

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19/06/2024 – CURRENT Gurgaon, India

### ROBOTICS ENGINEER - INTERN INDIA STEM FOUNDATION

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- **Reporting & Analysis:** Creating **detailed reports** on **webinars, student training sessions, and WRO 2025 registration updates**.
  - **STEM Teacher Training Leadership:** Leading the **ISF Certified STEM Teacher Training Program**, aimed at equipping educators with robotics and STEM education methodologies.
  - **Developed a 4-hour STEM teacher training program** to train **1,000 educators** in robotics and automation.
  - **Designed a structured 30-period STEM training curriculum**, enabling teachers to **implement STEM learning effectively** in schools.

Email [dhruva@indiastemfoundation.org](mailto:dhruva@indiastemfoundation.org)

19/06/2024 – CURRENT Gurgaon, India

### ROBOTICS ENGINEER - INTERN WORLD ROBOT OLYMPIAD INDIA

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- **Conducted technical training & mentorship** for students, teachers, and mentors, preparing them for WRO competitions.
- **Led webinars & training sessions** on **electronics, robotics, and event management** for WRO 2025.
- **Managed competition logistics:** Oversaw **venue setup, mission model construction, mat quality assurance, and technical infrastructure** at all WRO regional & national events.
- **Quality Assurance & Testing:** Performed **mat inspection, mission model testing, and competition setup validation** to maintain WRO standards.
- **Head Judge for RoboMission Junior** at **Mumbai Regionals & Ahmedabad Nationals**, ensuring structured evaluation and fair assessment.
- **Hosted & Coordinated WRO Kolkata Regionals**, leading event execution and operations.
- **Trained & mentored two interns:** One as a **Team Coordinator** and another as a **Robotics Engineer - Intern**, ensuring seamless event execution and technical support.
- **Finalizing WRO 2025 regional event dates** and overseeing **competition planning & execution**.

Email [dhruva@indiastemfoundation.org](mailto:dhruva@indiastemfoundation.org)

## ● CONFERENCES AND SEMINARS

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20/12/2024 Novotel, Kolkata

### Indian Engineering Congress

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Paper presentation titled "**Mind Controlled Bionic Arm with Sense of Touch**" in biotechnology category.

16/04/2024 Online

### SysCon24 Student Event

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Paper titled "**Robotic Swarm With Independent Selection of Master-Slave Configuration**"

Link <https://2024.ieeesyscon.org/authors/systems-council-student-event/>

12/10/2023 – 13/10/2023 Lovely Professional University, India

### 5th International Conference on Intelligent Circuits and Systems (ICICS-2023)

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Poster Presentation under the topic "**Mind Control Bionic Arm with Sense of Touch**"

This was the initial stage of the project and the first time that the project at a conference.

Link <https://www.lpu.in/conferences/icics/icics2023/>

## ● LANGUAGE SKILLS

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Mother tongue(s): **HINDI**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH</b>	B2	C2	B2	C2	B2
<b>BENGALI</b>	C2	C2	C2	C2	A2
<b>FRENCH</b>	A1	A1		A1	

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

## ● SKILLS

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### Robotics

signal processing | Autonomous Systems | Proteus | Mobile Robotics | Automation | MATLAB | Altium Designer | ARM | PCB designing | STM32 | Arduino | Linux | Raspberry Pi | Git | Simulink | Matlab Robotics | Embedded Systems

### Programming Languages

Python | Embedded C | Go | C++ | C | C# | PL/SQL | SQL | Java | C/ROOT@cern/Octave/Matlab | Matlab/Simulink

### Websites

Async API | Payment Integration | Backend | FrontEnd: HTML, CSS, JavaScript | Full Stack Website Development | API

## ● PROJECTS

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01/08/2023 – CURRENT

### Mind Controlled Bionic Arm with Sense of Touch

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This paper/project proposes a new design for a low-cost bionic hand with a touch sensor in the gripper. This feature aims to improve user safety and dexterity. The hand is crucial for daily life, and this design offers a more accessible alternative to hand transplantation.

Link <https://creativenet.dhruvashaw.in/projects/mcba/>

### Osteoporosis ML Model

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An AI model is being developed to detect Osteoporosis early and KL grade knee OA, using an Indian population-specific database

### Shaw Durga Puja

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Durga Puja rituals, documented since 2001, are now 24/7 accessible via a Heroku-hosted website with live streaming and photo archives.

Link <https://shawdurgapuja.herokuapp.com>

### Minato Namikaze

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Minato Namikaze, the versatile Discord bot, handles everything from admin tasks to fun and games.

Link <https://github.com/The-4th-Hokage>

## ● CERTIFICATIONS

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09/09/2024 – 14/09/2024

### **Artificial Intelligence for Sustainable B5G/6G Networks**

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IEEE Communications Society

12/06/2023 – 11/07/2023

### **Industrial Automation (PLC Programming)**

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Central Tool Room & Training Centre, GOI

12/09/2022 – 16/09/2022

### **Drone Hands-on-Training**

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Chitkara University, Chandigarh in coordination with Indian Institute of Technology Bombay

25/06/2020 – 10/07/2020

### **Oracle Database 11g: Advanced PL/SQL**

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Central Tool Room & Training Centre, GOI

21/12/2019 – 22/12/2019

### **Autonomous and Mobile Robotics**

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Robosapiens Technologies Pvt. Ltd