



**Parth Patil**  
**Electrical Engineering**  
**Indian Institute of Technology, Bombay**

**170070011**  
**B.Tech.**  
**Gender: Male**  
**DOB: 18-10-1998**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2021	7.51

#### KEY PROJECTS AND PROFESSIONAL EXPERIENCE

**RESEARCH INTERN** | *SAMSUNG RESEARCH INSTITUTE BANGALORE (SRIB)* [MAY'20-JULY'20]

- Worked with the IoT RnD team at SRIB, which works on **Smarthings Hub**, and next-generation **IoT devices**.
- Implemented the **Device state machine models** for the Local Device Watch using C, RUST and groovy .

**GOOGLE SUMMER OF CODE** | *DJANGO SOFTWARE FOUNDATION (DSF)* [MAY'19-AUG'19]

- Enhanced the "Form" layer of Django by introducing checks for child classes using **metaprogramming**.
- Prevented **Injection attacks** by introducing an 'edit only' mode in ModelFormSet, thus enhancing security.

**AUV (AUTONOMOUS UNDERWATER VEHICLE)** | *PROF. LEENA VACHHANI, PROF. HEMENDRA ARYA* [SEP'17-PRESENT]

- Designed and developed Autonomous Underwater Vehicle named MATSYA capable of localizing itself, doing realistic naval missions using visuals, intelligent planner, acoustics, depth sensor, thrusters & pneumatics.
- Joint winners** of NIOT-SAVE in 2019, and **semi-finalist** at Robosub 2019.
- Developed a **web-based Interface** for testing, and **ML-Tool** for marking bounding boxes for YOLO using a GUI.
- Implemented a **sensor-fusion** algorithm using an **Extended Kalman Filter** technique for position estimation.
- Reverse Engineered National Instrument's **NI-DAQ** driver to work in ubuntu using a **replay attack** method.

**UNDERWATER REMOTELY OPERATED VEHICLE (ROV)** | *LARSEN & TOUBRO DEFENCE* | *PROF. LEENA VACHHANI* [JULY'19-PRESENT]

- Designing an ROV deployable in seawater for scanning ship hull and doing surveillance in port/ocean condition.
- Joint effort by IIT Bombay and **Larsen & Toubro Pvt. Ltd.** under the IMPRINT II.C initiative of **MHRD**.
- Designing an **industrial interface to control** the vehicle and to view the output of different camera feeds.

#### OTHER PROJECTS AND INTERNSHIPS

**INTERN** | *ACADPAL* | *DESAI SETHI CENTRE FOR ENTREPRENEURSHIP* [DEC'18-JAN'19]

- Designed database for an **E-learning platform** named Acadpal, aiming to improve online teaching quality.
- Deployed an **API server** from scratch using Django REST API and implemented **token-based authentication**.

**AUGMENTED REALITY GLASSES** | *INSTITUTE TECHNICAL SUMMER PROJECT* [APR'18-JULY'18]

- Developed a **heads-up display** (similar to google glass) in a team of four, enabled with **face recognition**.
- Integrated database, face recognition, and display layers using **inter-process communication (IPC)**.

**GRADIENT CLASS ACTIVATION MAP (GRAD-CAM)** | *PROF. BIPLAB BANERJEE* | *COURSE PROJECT* [JAN'19-APR'19]

- Implemented Grad-CAM on the **UC Merced** dataset, to visualize the parts in the image that caused the activations in a particular targeted class, for the image having multiple objects of different classes.

#### SOFTWARE AND SKILLS

<b>Languages</b>	C++, Python, Java, Bash, C, Groovy, Rust, Ruby, Assembly, VHDL
<b>Web Development</b>	HTML, CSS, JavaScript, TypeScript, Jinja, Django, Django-Socket, REST API, Angular, Node.js, React.js, Jekyll, Flask
<b>Frameworks</b>	ROS, Pygames, OpenCV, D-Lib, Numpy, Tkinter, TensorFlow, PyTorch, Pandas, Flutter

#### POSITION OF RESPONSIBILITY

**MANAGER** | *DEVELOPER'S COMMUNITY (DEVCOM)* [APR'19-APR'20]

- Spearheaded and trained a team of sophomores & freshmen students, who oversee the development of **InstiApp**, an Android app of the institute which has more than **10,000 downloads** on the Play Store.

**DEPARTMENT ACADEMIC MENTOR** | *DAMP, EE IITB* [JULY'20-PRESENT]

- Mentoring **six sophomores** from the Electrical Engineering Department on a one-to-one basis on various aspects of their life, including their **academic** and **extra-curricular** pursuits in the institute.

#### Extra-Curricular Activities

- Completed one year in **NSO (National Sports Organization)** in **Swimming**, 2017-18.
- Instructed **Technical Summer School (TSS)** for **Web Development** hosted by the academic council.
- Mentored juniors in various high-reach events like **XLR8**, **Line-follower**, **Maze-solver**, **ITSP**.