Aditya Mulgundkar

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PROFILE

- Interested in designing robust, effective technical solutions and leading teams that build products at scale.
- Experienced in small/medium scale (10-50k DAUs) full-stack software, leading small teams, open-source projects.

EDUCATION

Master of Science in Electronics and Communication Engineering (MS in ECE),   2021 – present
International Institute of Information Technology, Hyderabad   Hyderabad, India

Bachelor of Techonology in Computer Engineering (B.Tech Computer Engineering),   2013 – 2017
Mukesh Patel School of Technology Management & Engineering   Mumbai, India

PROFESSIONAL EXPERIENCE

Sr. App Developer, *WedEasy*   2018 – 2020
- Scaled prototype application from a few hundred users to ~15,000   Mumbai, India
- Deployed bespoke software & hardware solutions for high footfall events (>3000)

Full-Stack Developer, *Guild Capital* 🔗   2017 – 2018
- Worked in a design-first team on multiple web and mobile applications - for incubated   Mumbai, India
  and sister companies

RESEARCH EXPERIENCE

Graduate Research Assistant, *Robotics Research Centre, IIIT-H* 🔗   2022 – present
- Conducting research on fault-tolerant controllers for Unmanned Aerial Vehicles (UAVs),   Hyderabad, India
  soft robotic gripper-based landing gears, and underactuated control systems

Robotics Engineer (Fellow), *SoarOn Aerospace Innovations Pvt. Ltd.*   May 2022 – Jul 2022
- Architected firmware, and developed Flutter app for smart hand sanitizers   Hyderabad, India
- Stakeholders (hospital managers, nurses) can download the app and track all devices
  inside the hospital and their status, battery levels, sanitizer liquid levels

Research Intern, *Indian Institute of Technology, Bombay (IIT-B)* 🔗   Jun 2016 – Aug 2016
- Worked as a Research Staff on Network Function Virtualization, based on the OPNFV   Mumbai, India
  Project's Open-Source "Arno" and "Brahmaputra" releases

PUBLICATIONS

Fault Tolerant Control using Dynamic Control Reallocation on a Hexacopter in outdoor test   Sep 2023
flights, *SafeComp 2023 (Under review, pre-print available on request.)*

Fault Detection and Isolation on a Hexacopter UAV using a Two-stage classification method,   Aug 2023
CASE 2023 (Under review, pre-print available on request.)

A data-driven approach to detect actuator faults in multirotor UAV,   Jun 2023
IEEE Sensors Council (Under review, pre-print available on request.)

RELEVANT PROJECTS

Embedded system based Fault Tolerant Control and Autonomous Navigation of a UAV,   present
Funded by DST (through TIHAN, IIT Hyderabad) 🔗
- Designed and developed several drones that can detect motor faults (using fault analysis)
  and reallocate actuator outputs (using an adaptive controller) to stabilize the drone within
  a few milliseconds

Soft robotic landing gear for a UAV,   present
Independent study with Dr. Harikumar Kandath @ IIIT-Hyderabad 🔗
- Developed a soft (compliant) landing gear that can change its shape to a huge degree,
  allowing the drone to perch trees, land on uneven surfaces, etc.

Created NuGet package for OpenCV and OpenCV contrib,   2021
Under Dr. Miguel Lourenco (CTO, Yoonik) and Dr. Satya Mallick (CEO, OpenCV) for GSoC 2021 🔗
- Created an OpenCV package on Nuget & brought support for automated deployment to it.
- The NuGet package updates every time the core OpenCV project has an update.

Design, fabrication & analysis of a magnetostrictive test-bed running in a lower-earth orbit,   2019
Under Dr. Kashyap Joshi @ NMIMS in Space
- Designed a payload for ISRO's Polar Satellite Launch Vehicle (PSLV).
- Test-bed studies Terfenol-D material's intrinsic shape transformation effect, in outer space.

Network Function Virtualization orchestration for on-premise vCPE (B.Tech Project),   2017
Under Dr. Ashwin Gumaste @ the Gigabit Networking Lab, IIT-Bombay
- Implemented NFV to benchmark WAN on Customer Premise Equipment
- Successfully implemented RFC 3031, RFC 3035, RFC 3036.

Valorant++ | Flutter app for Valorant (Game) ✏   Jun 2020
- Game companion app that shows relevant game data and statistics
- Gained 10k users organically
- Only released 1 version (at launch), yet one of the most famous/ most downloaded Valorant apps on the Play Store

Student Competitions
- MATE ROV 2014, 2015 & 2016
  - Autonomous Underwater Vehicle (AUV)
  - Tethered Remotely Operated Vehicle
- ABU RoboCon 2015, 2016 & 2017
  - Badminton playing robots (1 manual, 1 autonomous)
  - Complex terrain following & pole climbing robots (2 autonomous robots)
  - Frisbee-like disc throwing robot (autonomous)
- Formula Student 1 2014
  - CAN-based reporting and analysis in real-time

AWARDS, GRANTS & RECOGNITIONS

Full Research Fellowship; covered tuition fees and living expenses, *For Masters studies at IIIT-H*   Jan 2022 – present

3rd Prize at Solana's Building Out Loud Hackathon, 2021 (India),   Oct 2021
For Project "SolCodes: Programmable NFT Marketplace" ✏

Honorary certificate for representing India & the university (for MATE ROV Competition),   Jun 2017
At NASA's Johnson Space Centre, Houston, TX

Best usage of MathWorks' tools for simulations (using MATLAB & Simulink),   2016 – 2017
Awarded twice consecutively at the Asia-Pacific Broadcasting Unit's Robocon Competition

Gold Medalist at the 12th Annual National Cyber Olympiad, *1st in School, 48th in State*   2013

VOLUNTEER WORK

Maintainer/ Owner (Open Source)   2020 – present
- Flutter OpenCV ✏ - Flutter plug-in providing bindings to OpenCV-4.x.
- Wallpaper Manager ✏ - Flutter plug-in for changing the Home Screen, Lock Screen (or both) Wallpaper on Android devices.

Technical Evaluator/Mission Judge   Jun 2019 – Apr 2022
- For MATE ROV's India Regional Underwater Robotics Competition in Mumbai

Technical Reviewer for online MOOCs   2019
- Real-world projects with Flutter ✏
- Learning Java 11 ✏

SKILLS

Web Development	Robotics Development	Mobile App Development	Depth Domains
Javascript, NodeJS, PostgreSQL, Django, Swift	*Python, MATLAB, Simulink, Gazebo, PX4, ArduPilot, SOFA (Framework), AirSim*	*Flutter, Kotlin, Java, Swift*	*Drones/UAVs, Robotics, Flutter, Product Dev, Web3*

REFERENCES

Dr. Harikumar Kandath, *Assistant Professor,* International Institute Of Information Technology, Hyderabad
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Dr. Deepak Gangadharan, *Assistant Professor,* International Institute Of Information Technology, Hyderabad
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