# Ankit Shrikrishna Wani

**Data Scientist, ADAS in IN-BI Intelligent Mobility & Software Group**
**FEV India Pvt. Ltd.**
*Advisors: Dr. Umesh Hivarkar & Archana Wagh*

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## EDUCATION

**Centre for Development of Advanced Computing ACTS** (*Government of India*)     *India*
(*Scientific Society of the Ministry of Communication and Information Technology*)
*PG Diploma*, in Artificial Intelligence     *Sep '21 - April '22*
**Percentage: 85.08% Grade: A+ All India Rank: 2**

**Siddhant College of Engineering Pune**     *India*
*Bachelor of Engineering*, Electronics and Telecommunication Engineering     *Aug '11 - Jun '17*
**Percentage: 78.93% Institution Rank: 1** (Final Year)

## RESEARCH INTERESTS

**Primary:**    Large-scale Machine Learning, Statistical learning Theory, Convex and non-convex optimization
**Others:**    Sensor Fusion, Deep Learning on (Embedded Devices, IoT Devices, for Autonomous Vehicles),
           Path planning, Control, Decision making & Proving Safety Trajectories, Perception, Localisation

## PUBLICATIONS

- **Ethics in the Driver's Seat: Unravelling the Ethical Dilemmas of AI in Autonomous Driving** [Link]
  **Ankit Wani**, Deepa Kumari, Jyotsana Singh, Avinash Ithape *FEV India Pvt. Ltd.*
  In *AI and Machine Learning SAE International World Congress Experience (WCX), Detroit, USA 2024.*

- **FEV's "CogniSafe: Pioneering Autonomous Vehicles with Advanced AI DMS**    [Link]
  **Ankit Wani**, Deepa Kumari, Govind Rapanwad, Jyotsana Singh, Avinash Ithape *FEV India Pvt. Ltd.*
  In *AI and Machine Learning SAE International World Congress Experience (WCX), Detroit, USA 2024.*

- **A real-time autonomous system designed for in-cabin safety using camera**    [Link]
  **Ankit Wani**, Deepa Kumari, Govind Rapanwad, Jyotsana Singh, Avinash Ithape *FEV India Pvt. Ltd.*
  In submission at *AI and Machine Learning SAE International World Congress Experience, USA 2024.*

- **Accelerating AI-based development of Animal Detection features for Indian Traffic scenarios** [Link]
  **Ankit Wani**, Deepa Kumari, Govind Rapanwad, Jyotsana Singh, Avinash Ithape *FEV India Pvt. Ltd.*
  In submission at *AI and Machine Learning SAE International(WCX),USA 2024.*

- **Monocular vision-based distance estimation, safe distance monitoring**    [Link]
  **Ankit Wani**, Deepa Kumari, Govind Rapanwad, Jyotsana Singh, Avinash Ithape *FEV India Pvt. Ltd.*
  In *ADAS and Autonomous Vehicle Sytem: ADAS/AVS - Perception SAE International World Congress Experience (WCX), Detroit, USA 2024.*

- **Performance Analysis of class EF2 Inverter and Rectifier for Wireles Power Transfer Systems** [Link]
  Akshay Gapchup, **Ankit Wani**, Ashish Wadghule, Akshay Thorat
  In *International Journal of Innovative Research in Science Engineering and Technology (IJIRSET)*, 2017.

- **The Phone Sat and Application**    [Link]
  Akshay Gapchup, **Ankit Wani**, Ashish Wadghule, Akshay Thorat
  In *International Journal of Electronics and Tele-communication Engineering and Technology (IJECET)*, 2017.

- **Emerging trends of Green IOT for Smart World**    [Link]
  Akshay Gapchup, **Ankit Wani**, Ashish Wadghule, Sashank Jadhav
  In *International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)*, 2017.

- **Health Care Systems using Internet of Things**    [Link]
  Akshay Gapchup, **Ankit Wani**, Durvesh Gapchup, Sashank Jadhav
  In *International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)*, 2017.

- **A Survey on Millimeter-Wave A Permissive Technology for 5G Cellular Communication**    [Link]
  Akshay Gapchup, **Ankit Wani**, Durvesh Gapchup, Sashank Jadhav
  In *International Journal of Innovative Research in Science Engineering and Technology (IJIRCCE)*, 2017.

- **Flying Rubick's with self assembling using M-Blocks**    [Link]
  Akshay Gapchup, **Ankit Wani**
  In *International Conference on Inventive Systems and Control (IEEE)*, 2017.
  Best Paper Runner-Up Award.

## Patents

- **System and Method for Next-Gen ADAS Engineering Framework** *(FEV Europe GmbH)* [Link]
  Akshay Gapchup, **Ankit Wani** ∘ *Application No - 201721001301 (Publication No - 03/2017)*
- **Mass estimation for superior range prediction** *(FEV Europe GmbH)* [Link]
  Akshay Gapchup, **Ankit Wani** ∘ *Application No - 201721001301 (Publication No - 03/2017)*
- **Powertrain Control for Battery Electric Vehicle BEV's** *(FEV Europe GmbH)* [Link]
  Akshay Gapchup, **Ankit Wani** ∘ *Application No - 201721001301 (Publication No - 03/2017)*
- **Advanced Border Securities** *(Ministry of DRDO)* [Link]
  Akshay Gapchup, **Ankit Wani** ∘ *Application No - 201721001301 (Publication No - 03/2017)*
- **Mr. ARM** [Link]
  Akshay Gapchup, **Ankit Wani** ∘ *Application No - 201721001301 (Publication No - 03/2017)*
- **Cognitive Biometrics using Mouse Perturbation** [Link]
  Akshay Gapchup, **Ankit Wani** ∘ *Application No - 201721001301 (Publication No - 03/2017)*

## Workshop Presentations

- **Image Processing: Basic and Advanced Training**
  **Don Kurian Dennis**, Harsha Simhadri, Prateek Jain
  *Workshop on Machine Learning on the Phone and other Consumer Devices (MLPCD 2), NIPS 2018*
- **Basic and Intermediate AI ML Training**
  **Don Kurian Dennis**, Harshit Singh, Karan Jakhar, Prashant Baghel
  *International Symposium on Embedded Computing and System Design (ISED), 2016.* **Runner-up**, *ISED Grand Challenge.*
- **Engineering analytics for solving unsolved problems**
  **Don Kurian Dennis**, Ayushi Priyam, Sukhpreet Virk, Sajal Agrawal, Tanuj, Arijit Mondal, Kailash Ray
  *International Symposium on Embedded Computing and System Design (ISED), 2017.*
- **Engineering analytics for solving unsolved problems**
  **Don Kurian Dennis**, Ayushi Priyam, Sukhpreet Virk, Sajal Agrawal, Tanuj, Arijit Mondal, Kailash Ray

  *International Symposium on Embedded Computing and System Design (ISED), 2017.*
- **Computer Vision and sensor fusion for Object detection**
  **Don Kurian Dennis**, Ayushi Priyam, Sukhpreet Virk, Sajal Agrawal, Tanuj, Arijit Mondal, Kailash Ray
  *International Symposium on Embedded Computing and System Design (ISED), 2017.*

## Work Experience

**FEV India Pvt. Ltd.**

*Advisors: Dr. Umesh Hivarkar & Dr. Christian Fuchs*      *Nov '17 - Sep '18,*

Developed and implemented state-of-the-art algorithms and models for Battery Digital Twin, AI Traffic Jam Pilot, Adaptive cruise control, Lane keep assist, centering and departure warnings, Blind spot detection across multiple facets of autonomous vehicle systems, including perception, localization, mapping, planning, control, and decision-making.

Spearheaded a 6-member data science team to develop 'ALIVA', and patented annotation framework for 2D and 3D point cloud data with advanced cognitive tracking algorithms. Produced 2TB+ annotated data for 50+ unique instances in European and Indian scenarios, enhancing autonomous driving algorithm training with a scalable solution.

Demonstrated a strong ability to collaborate effectively with cross-functional teams, ensuring seamless integration of cutting-edge research into the autonomous vehicle platform. Achieved practical applicability of research outcomes for enhanced platform performance.

Exemplified a proven ability in mentoring and guiding team members, junior researchers, interns, and undergrads fostering a collaborative and inclusive research environment that encourages professional growth and knowledge sharing.

**Griffyn Robotech Pvt. Ltd.**

*Advisors: Dr. Deepak Anand*      *Nov '17 - Sep '18,*

Developed and implemented AI-based evaluation and decision making modules for *DEEPSIGHT* & *Deepclean* a patented product in the reverse logistic chain of cell phones for Fortune 500 client using generative models and attention-based CNNs for semantic segmentation for cosmetic evaluation of products for optimization of resale value and objectiveness.

Vision guided cosmetic grading and functional testing robotic solution for cell phones using reinforcement learning based space-exploration, object detection, and real-world coordinate mapping.

Few-shot learning-based surface inspection and IIOT 4.0 products for automobile manufactures along with optimal vision system for defect capture by the selection of cameras and illumination strategy.

### Protocontrol Instruments Pvt. Ltd.
*Advisors: Dr. Prateek Jain & Dr. Harsha Simhadri*                                    *Jan - May '18,*

Conducted coding in C and C+ for manufacturing assemblies, performed troubleshooting and debugging activities, and documented bug fixes in the knowledge base.

Supported the engineering team in defining software requirements and documentation for new product development of embedded systems. *(Accepted at NIPS '18)*

### BSNL - A Government of India Enterprises
*Advisors: Dr. Prateek Jain, Dr. Harsha Simhadri & Dr. Manik Varma*                          *July - Dec, '17,*

Diagnosed and resolved complex integrated customer issues for voice, data, VoIP, and CTI application implementation, add-on, maintenance, and support.

Trained on an overview of Signalling Concepts, Digital Transmission Systems, and Mobile Technologies, along with detailed study of Broadband technologies and 5G latest trends.

*(In submission, CHI '19 & Microsoft's demonstration at NIPS '18).*

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## OPEN SOURCE CONTRIBUTIONS

### AI Agents within UNITYML                                                              [GitHub]
*Advisors: Dr. Maheshwari Biradar Open Source*

Core developer of EdgeML, Microsoft Research India's machine learning library for edge and end-point devices. Developed ProtoNN and EMI-RNN for EdgeML's Tensorflow submodule. Maintainer of the python codebase.

### Automated 3-DOF Robotic Arm                                                          [GitHub]
*Advisors: Dr. Maheshwari Biradar Open Source*

Core developer of Robotic arm Implemented and integrated Image processing and Speech to text (STT) complex algorithmns and improved accuracy of the noise factor and overlapping speeches by 30% and drawing accuracy by 11_mm.

### Encrypt and Decrypt text message using AES Encryption Algorithmn                      [GitHub]
*Open Source*

Integrated and implemented AES algorithmn deployed on embeded processor, smallest to fastest technique with state-of-the-art results to provide security from abnormality, intrusion frauds thus providing security in storage and transmission.

### Lunar Lander using OpenAI v2 - Discrete Action Space                                  [GitHub]
*Open Source*

Integrated and implemented AES algorithmn deployed on embeded processor, smallest to fastest technique with state-of-the-art results to provide security from abnormality, intrusion frauds thus providing security in storage and transmission.

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## AWARDS & ACHIEVEMENTS

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|---|---|
| 2016 | Graduated, at the **Top** of my institution with **78.93%** |
| 2021 | All-India-Rank 1 in **C-CAT** Centre for Development of Advanced Computing entrance exam amongst 90,000 candidates |
| 2015 | 1st , **CodeStorm**  - Competitive Programming |
| 2021 | 1st prize in **Paper Presentation** - Flying Rubick's with self-assembly with M - Blocks |
| 2021 | 1st prize in **Paper Presentation** - Flying Rubick's with self-assembly with M - Blocks |
| 2015 | 1st prize in **Google Challenge** completed all challenging tasks fastest with the best score |
| 2016 | 1st prize in **Google Junk** completed all challenging tasks fastest with the best score |
| 2016 | 2nd prize in **Boc Cricket**- Captained team of 6 and competed against 30 teams to won second prize |

| 2016 | 2nd prize in **Boc Cricket**- Captained team of 6 and competed against 30 teams to won second prize |
| 2016 | Finalist in **Aptitude Cracker** |
| 2016 | Finalist in **Poster Presentation** - "Women Empowerment" |

## SKILLS SUMMARY

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|---|---|
| **Languages:** | Python, Jva, C++, JavaScript, SQL, Bash, JAVA |
| **Frameworks:** | Scikit, NLTK, SpaCy, TensorFlow, Keras, Django, Flask, NodeJS, LAMP |
| **Tools:** | Kubernetes, Docker, GIT, PostgreSQL, MySQL, SQLite |
| **Platforms:** | Linux, Web, Windows, Arduino, Raspberry, AWS, GCP, Alibaba Cloud, IBM Cloud |
| **Soft Skills:** | Leadership, Event Management, Writing, Public Speaking, Time Management |