

# Akshit Gupta

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Delft, The Netherlands

## Education

### TU Delft

*Delft, The Netherlands*

PHD CANDIDATE

*June-2022 - Present*

- Monitoring of environmental parameters at high spatio-temporal resolutions through dedicated sensing (custom developed hardware and software), opportunistic sensing (street view imagery) and weak supervision.
- Direct funding from the CITG faculty with flexibility in research areas at the intersection of climate change, machine learning and internet of things. Supervised by Prof. Remko Uijlenhoet

### Massachusetts Institute of Technology

*Cambridge, MA, USA*

STUDENT RESEARCHER: MASTER THESIS

*March-2021 - May-2022*

SENSEABLE CITY LAB

- Master thesis leading to a novel approach to autonomously measure the health of urban trees using sensors mounted on moving vehicles like taxis and garbage trucks.
- Outputs: Invention Disclosure with MIT TLO (declined at patent feasibility stage) and two publications

### TU Delft

*Delft, The Netherlands*

INDIVIDUAL DOUBLE MASTERS:

MSC EMBEDDED SYSTEMS (TRACK: SOFTWARE AND NETWORKING)

*Aug-2019 - April-2022*

MSC COMPUTER SCIENCE (TRACK: ARTIFICIAL INTELLIGENCE TECHNOLOGY)

- Graduated **cum-laude** (highest possible distinction) for both MSc programmes
- Thesis Grade: 9.0/10.0 with research papers and a potential patent
- Awarded **Annotation Entrepreneurship** for startup aptitude and ideation

### N.S.I.T, University of Delhi

*New Delhi, India*

B.E ELECTRONICS AND COMMUNICATION ENGINEERING

*Aug 2013 - June 2017*

- Graduated First Class with Distinction (highest possible distinction)
- Merit Scholarship for academic excellence in 3 consecutive years from 2014-2017

## Honors, Awards & Grants

Jan 2023	<b>Top 10 Nominees (Whole Netherlands): Engineer of the Year 2023</b> , Prins Friso Ingenieursprijs	<i>Pan Netherlands</i>
Nov 2022	<b>Climate Action Seed Fund Grant (EUR 23995)</b> , TU Delft Climate Action Programme	<i>Delft, Netherlands</i>
Nov 2022	<b>Honory Prize - Top 10 (USD 500)</b> , IEEE VTS Innovation Challenge - Advanced Air Mobility Concepts	<i>Florence, Italy</i>
Feb 2022	<b>2nd Prize (USD 3000)</b> , MIT Water Hackathon	<i>Cambridge, USA</i>
Jan 2022	<b>FAST Fund, EFL Stichting Travel Grant, Foundation of Renswoude</b> , Travel and Living Expenses at MIT	<i>Pan Netherlands</i>
Sep 2021	<b>Winner (USD 2500)</b> , Hack Zurich 2021 (Xylem Challenge)	<i>Zurich, Switzerland</i>
Aug 2021	<b>Global Fellow</b> , Sigma Squared Society (formerly Kairos Europe)	<i>Worldwide</i>
June 2021	<b>Top 100 Sustainability Young Frontrunners in the Netherlands</b> , Duurzaamste Jonge (DJ100)	<i>Pan Netherlands</i>
Feb 2021	<b>1st Prize</b> , Ready to Startup by YES! Delft and Rolland Berger	<i>Delft, Netherlands</i>
Sep 2020	<b>Winner (CHF 900)</b> , Hack Zurich 2020 (Roche Diagnostics Challenge)	<i>Zurich, Switzerland</i>
Jun 2020	<b>Winner: Wildcard Dutch 4TU Impact Challenge</b> , TU Delft Impact Challenge 2020	<i>Delft, Netherlands</i>
Jan 2020	<b>Encouragement Prize and Semi Finalist (EUR 100)</b> , Philips Innovation Award 2020	<i>Pan Netherlands</i>
Nov 2019	<b>2nd Prize (EUR 1500)</b> , EIT Deephack: Hacking Mobility with IoT	<i>Tilburg, Netherlands</i>
Nov 2019	<b>2nd Prize</b> , Tech Quest: YES! Delft and Aramco	<i>Delft, Netherlands</i>
Nov 2019	<b>2nd Prize (EUR 5000)</b> , TU Delft Global Initiative Prototype Competition	<i>Delft, Netherlands</i>
Nov 2019	<b>Winner</b> , IoT Dragon's Den, TU Delft Global Impact Day	<i>Delft, Netherlands</i>
Oct 2018	<b>Joint Winner</b> , #IndiaBuildsActions Campaign by Google	<i>Bangalore, India</i>
Mar 2018	<b>Winner</b> , Airtel-Pluralsight Tech Ninja Award	<i>Gurgaon, India</i>
2015,16,17	<b>Merit Scholarship during Bachelors Degree (EUR 800)</b> , University of Delhi	<i>New Delhi, India</i>

## Publications

Using street view imagery and deep generative modelling for estimating the condition of urban forests

A. Gupta, R. Uijlenhoet

ICLR 2025 Workshops: Tackling Climate Change with Machine Learning, April 2025, URL: <https://doi.org/10.48550/arXiv.2504.14583>

GreenScan: Towards large-scale terrestrial monitoring the health of urban trees using mobile sensing

A. Gupta, S. Mora, F. Zhang, M. Rutten, R.V. Prasad, C. Ratti

IEEE Sensors, May 2024, URL: <https://doi.org/10.1109/JSEN.2024.3397490>

Tools and methods for monitoring the health of the urban greenery

A. Gupta, S. Mora, Y. Preisler, R.V. Prasad, C. Ratti

Nature Sustainability, March 2024, URL: <https://doi.org/10.1038/s41893-024-01295-w>

Towards autonomous large-scale monitoring the health of urban trees using mobile sensing

A. Gupta, M. Rutten, R.V. Prasad, R. Uijlenhoet

NeurIPS 2023 Workshops: Tackling Climate Change with Machine Learning, Dec 2023, URL: <https://www.climatechange.ai/papers/neurips2023/113>

To Trust, or not to Trust: Building Trust in a Decision Support System Using a Conversational Interface

A. Gupta, D. Basu, R. Ghantasala, S. Qui, U. Gadiraju

The Web Conference (WWW) 2022, April 2022, URL: <https://doi.org/10.1145/3485447.3512248>

Second Chance for a First Impression? – Trust Development in Human-AI Interaction

S. Tolmeijer, U. Gadiraju, R. Ghantasala, A. Gupta, A. Bernstein

ACM UMAP 2021, March 2021, URL: <https://doi.org/10.1145/3450613.3456817>

## Invited Talks

2025	<b>Oral Talk: Towards the pareto-optimal of large scale sensing by combining terrestrial and remote sensing</b> , NWO NAC Conference	Noordwijkerhout, NL
2025	<b>Invited Speaker: Large-scale sensing by fusing street-view hyperspectral imagery data and remote sensing</b> , Urban M4 Symposium	Wageningen, NL
2022	<b>SCAI Workshop Invited Talk: Evaluation of conversational interfaces</b> , SIGIR 2022	Madrid, ES (Online)
2022	<b>Invited Panel Member: Digitalization In Ghana</b> , TU Delft Global Initiative	Delft, NL
2018	<b>IoT integration with Machine Learning</b> , Indian School of Business. Mohali	Mohali, IN
2018	<b>Smart Home and IoT</b> , IoT-NCR Meetup	Gurgaon, IN

## Selected Media

2022	<b>Running where the air is the cleanest</b> , De Ingenieur
2021	<b>Using buses, cars or bikes to measure air quality? Respire is going to do it</b> , Innovation origins
2021	<b>Helping communities combat effects of floods at Europe's biggest hackathon</b> , Business Wire, Xylem
2021	<b>Sustainable solutions for environmental quality in African Cities.</b> , TU Delft   Global Initiative
2021	<b>We want to empower municipalities like Delft to tackle air pollution</b> , TU Delta
2018	<b>Meet the top 12 selected winners of #IndiaBuildsActions</b> , Google Developers

## Professional Experience

### Respire

Delft, The Netherlands

FOUNDER AND CEO

Feb 2021 - Dec 2023

- At Respire, we map the pollution in the air around you, analyse it and provide insights to improve your communities, municipalities and cities. With a small team, we are working on both technological development and building a scalable business plan
- Chosen to represent TU Delft at Dutch 4TU Impact Challenge 2020 (national) among 81 other submissions
- Winner of initial Prototype funding of **EURO 7500** from various entities: TU Delft Global Initiative, ReadyToStartup by Rolland Berger and YES! Delft, sponsorship by Stud Delft, visiting Ghana for prototype testing
- In december 2023, we decided to stop working on Respire, as we could not implement a viable business model for providing air pollution monitoring data to users while raising reasonable revenue from customers.

### Entrepreneur First (EF)

London, United Kingdom

FOUNDER IN RESIDENCE: LD20 COHORT

Apr 2023 - Aug 2023

- Startup investor and accelerator, exploring and learning to develop high-impact ideas into unicorn companies based on customer and user driven validation, with access to leading advisors, and £145k pre-seed funding.
- Tough, interesting and hands-on twelve weeks with real-world startup validation. Most importantly, creating businesses based on economics and financial feasibility rather than only relying on technological advantages.
- As the co-founder of EF, Matt Clifford said on the first day at the EF office, "EF is the place who people have never failed before come to fail."

## TU Delft - EEMCS Faculty

Delft, The Netherlands

TEACHING ASSISTANT: IN4398 ADVANCED IoT COURSE (PROF. R.V. PRASAD) AND CS4145: CROWD COMPUTING COURSE (PROF. UJWAL GADIRAJU)

Feb 2021 - Nov 2021

- IN4398: Proposing project ideas, mentoring student projects and grading student seminar presentations.
- CS4145: Reading research papers and grading the student's submissions pertaining to the course

## TU Delft - Embedded and Network Systems Research Group (Prof. Marco Zuniga)

Delft, The Netherlands

RESEARCH ASSISTANT

Oct 2020 - Feb 2021

- Prototyping and implementation of privacy preserving detection of social distancing and human localisation using mmWave radar sensors and Wifi Trace analysis in response to COVID-19.

## TU Delft - Web Information Systems Research Group (Prof. Alessandro Bozzon)

Delft, The Netherlands

RESEARCH ENGINEER

July 2020 - Sept 2020

- Development of conversational agent to simulate behaviour change as well as ensuring mental well being for students in response to the COVID-19 while also serving as a platform to gather insightful data for crowd-computing scenarios.
- Designed the system architecture to be agnostic of front end client and NLP framework along with research on trust in autonomous systems.

## Airtel X Labs - Bharti Airtel

Gurgaon, India

SOFTWARE ENGINEERING - YOUNG TECH LEADER

June 2017 - Aug 2019

- Joined as one of 14 engineering graduates from all over India for the Young Technical Leader Programme.
- Spearheaded the development of Google Assistant based Customer Care (**Industry first**) from day-0 prototype to launch for smart speakers, cars and other IoT Devices with estimated multi-million savings in customer care costs.
- Research and development of latest technologies in Airtel Android App (App indexing, M,V,VM architecture, Kotlin).
- Learnt full-stack system design from front-end (Android) to back-end (Spring Boot with both SQL and noSQL databases). Further, deciding system architecture based on worst case concurrent input API hits to downstream systems.

## Baatna

Delhi, India

ANDROID ENGINEERING INTERN

Dec 2015 - Feb 2016

- Improved loading time (first load) of app by approximately 30% by moving relevant tasks to background threads.
- Developed user rating system to control the quality of platform
- A startup where I would like to work again, if given a chance

## Selected Projects

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### Interactive Smart Home with Face ID and Voice Control

BACHELOR GRADUATION PROJECT

2017

- IoT and applied machine learning project utilizing gateway architecture based on custom firmware, arduinos, raspberry pi, MQTT and Azure APIs.
- Graded **highest** among all the final year projects of batch of 2017

### Penalty Shootout

AVAILABLE INTERNATIONALLY AT GOOGLE ASSISTANT ACTIONS STORE

June 2018

- Game/Agent created using Dialogflow NLP engine and published on Google Assistant Store
- Chosen as **Winner** of #IndiaBuildsActions organised by Google in 2018 and showcased at Google Dev Fest 2019 in Bangalore, India.

### AppButton (Formerly WhatsFace)

AVAILABLE INTERNATIONALLY AT GOOGLE PLAY STORE

Jan 2014

- Android app published on Play Store with more than **2,00,000 downloads**.
- Self taught android app development to develop an app which simulates combining of Whatsapp and Facebook using Android recent tasks API.

## OPEN SOURCE

### ID Card Data Extractor - ML KIT

GITHUB

Sept 2018

- Android app which uses ML-Kit for on-device machine learning for text extraction from Proof of Address (Adhaar Card) and Proof of identity (PAN card) for Indian Nationals. Pre-trained ML model from firebase used for image-text extraction and combined with deterministic algorithms.

### Crypto Handler- Alexa Skill

AMAZON ALEXA STORE AND GITHUB

Feb 2018

- Voice Skill published in Amazon Alexa Skill Store with multi turn dialog and understanding user context. Fetches the prices of various cryptocurrencies in the fiat currency of user's choice.

# Academic Service

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## Board Member

*Delft, The Netherlands*

YOUNG DELFT ASSOCIATION

*May 2024 - Present*

- With a team of six, we organize one social event per month for all TU Delft PhDs, Post-docs and assistant professors under the age of 35. As of 2025, we usually receive 6-10 times more sign ups than the number of available participant spaces.

## Reviewer

*Remote*

ICLR 2024 AND ICLR 2025 WORKSHOPS: TACKLING CLIMATE CHANGE WITH MACHINE LEARNING WORKSHOP, IEEE

*Jan 2024 - Present*

TRANSACTIONS ON MOBILE COMPUTING

- Giving critical feedback for the papers reviewed. It helped atleast one meta-reviewer make the final decision on "borderline" and "reject" papers, and should have helped the authors improve their work.

## Committee Member

*Delft, The Netherlands*

SoMIEMBROS: SoSALSA DANCE ASSOCIATION

*Sept 2024 - Present*

- With a team of four, we organize one social event per month for all the members of SoSalsa Dance association at TU Delft. These events range from Christmas dinner, new year's dive to secret valentine crush.

## Volunteer

*New Orleans, LA, USA*

NEURIPS 2023 CONFERENCE

*Dec 2023*

- Performing various activities including on-demand support for oral talks and checking attendees badges. NeurIPS organisation team was very kind for covering both the conference registration fees and accommodation at New Orleans.

## Event Organisation Committee

*Delft, The Netherlands*

MOTIV TU DELFT

*Feb 2021 - Dec 2021*

- Organising in-person intercultural events such as mid-summer mystery hunt and easter monday lunch comprising of dutch hosts and international guests

## EEMCS Student Mentor

*Delft, The Netherlands*

EEMCS FACULTY, TU DELFT

*Sept 2020 - Feb 2021*

- Mentoring the group of 25 incoming students pursuing MSc in Embedded Systems. Sharing my experiences from the past year in order for them to derive the insights which ensures a successful journey at TU Delft. Further, answering queries and giving general intro about the faculty.

## Secretary - Committee for Masters Activities

*Delft, The Netherlands*

W.I.S.V. 'CHRISTIAAN HUYGENS'

*Nov 2019 - Sept 2020*

- Organizing both social and educational activities specifically directed at master students of four different Masters degrees at EEMCS TU Delft which includes Computer Science, Applied Mathematics, Computer Engineering and Embedded Systems.

## Coach IP Summer 2020

*Delft, The Netherlands*

TU DELFT

*Aug 2020*

- Coach for the Introduction Programme Summer 2020 for new masters students at TU Delft, which lasts for 4 days fully packed with activities. As a coach, I was responsible for showcasing the academic and social aspects at TU Delft and Delft in general to a group of 10 new students

## Volunteer

*Brussels, Belgium*

FOSDEM 2020

*Feb 2020*

- Heralding talks and guiding visitors to digital platforms.

## Cultural Connoisseur - Culture and Integration Committee

*Delft, The Netherlands*

ESN DELFT

*Oct 2019 - Dec 2019*

- Organizing activities for cultural integration of international students at TU Delft.

# Skills and Interests

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## Area of Interests

IoT, Sensor Networks, Efficient Deep learning, Graph Theory, Trust and AI, Entrepreneurship

## Software

Real-time Systems, Machine Learning, Full-Stack Development, Data structures, Algorithms, Conversational Agents

## Programming

Java, Python, C, Javascript

## Languages

English (Fully proficient), Hindi (Native), Dutch (A2)