

ANUP KUMAR GUPTA

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EDUCATION

Indian Institute of Technology Indore <i>Ph.D. in Computer Science and Engineering</i>	<i>Aug. 2021 - Present</i> <i>CPI: 10/10</i>
Indian Institute of Technology Indore <i>M.S.(Research) in Computer Science and Engineering</i>	<i>Aug. 2019 - Aug. 2021</i> <i>CPI: 10/10</i>
Dr. A.P.J. Abdul Kalam Technical University, Lucknow <i>B.Tech. in Computer Science and Engineering</i>	<i>Aug. 2013 - Jul. 2017</i> <i>Score: 78.42%</i>

RESEARCH

Adversarial Robustness of Vision Transformers – Extensively explored the robustness of different types of transformer based vision models. – Performed untargeted and targeted attacks, on different flavours of vision transformers, under different settings.	<i>Jan. 2022 - Present</i>
Adversarial Attacks on Medical Image Segmentation Models – Devised a novel attack architecture that selects the best surrogate loss function to perform attack on medical image segmentation models while adding minimum adversarial perturbations. – The architecture was able to fool the state-of-the-art medical image segmentation models with an attack success rate of more than 99%.	<i>Aug. 2021 - Dec. 2021</i>
Defence against Adversarial Attacks on NLP Models – Devised two novel transformation based defences that can circumvent state-of-the-art attacks. – The proposed defence overcome the drawbacks of the existing spelling correction based defences.	<i>Jan. 2021 - Jun. 2021</i>
Adversarial Attacks on Audio-Visual Speech Recognition Models – Devised a novel attack to breach the state-of-the-art AVSR models by simultaneously deceiving the detection algorithm, with an attack success rate of 100%.	<i>May. 2020 - Nov. 2020</i>
Adversarial Attacks on Visual Speech Recognition Models – Devised a novel algorithm to perform an attack on the state-of-the-art VSR models with a 100% attack success rate. – The algorithm was able to circumvent popular defences with an attack success rate of more than 99%.	<i>Dec. 2019 - Apr. 2020</i>

PUBLICATIONS

- **Anup Kumar Gupta**, Aryan Rastogi, Vardhan Paliwal, Fyse Nassar, Puneet Gupta. “D-NEXUS: Defending text networks using summarization”, *Electronic Commerce Research and Applications* (2022), DOI:<https://doi.org/10.1016/j.elerap.2022.101171>.
- **Anup Kumar Gupta**, Vardhan Paliwal, Aryan Rastogi, Puneet Gupta. “TRIESTE: Translation based defense for text classifiers”, *Journal of Ambient Intelligence and Humanized Computing* (2022), DOI:<https://doi.org/10.1007/s12652-022-03859-0>.

- Jainendra Shukla, Puneet Gupta, Aniket Bera, Arka Sarkar, Prakhar Goel, Shubhangi Butta, **Anup Kumar Gupta** et al. “Contextual Emotion Learning Challenge.” In *16th IEEE International Conference on Automatic Face and Gesture Recognition (FG 2021)*, <https://doi.org/10.1109/FG52635.2021.9667034>.
- Saumya Mishra, **Anup Kumar Gupta**, and Puneet Gupta. “DARE: Deceiving Audio–visual speech Recognition model.” *Knowledge-Based Systems (2021)*, DOI: <https://doi.org/10.1016/j.knosys.2021.107503>.
- **Anup Kumar Gupta**, Puneet Gupta, and Esa Rahtu. “FATALRead – Fooling visual speech recognition models.” *Applied Intelligence (2021)*, DOI: <https://doi.org/10.1007/s10489-021-02846-w>.

PROJECTS

Next Word Prediction Sep. 2019 - Nov. 2019

Course Project

- An LSTM based deep neural network capable of predicting next word based on previous words inputted by the user.
- Framework: TensorFlow, Language: Python

Automatic Text Summarization Jul. 2016 - Apr. 2017

Major Project

- A Deep Neural Network capable of producing a summary of a larger piece of text using the abstract summarization technique.
- Framework: TensorFlow, Language: Python

Biometric Attendance System Dec. 2015 - Apr. 2016

Departmental Responsibility

- Deployed as an attendance system for more than 600 faculty and staff members of Ajay Kumar Garg Engineering College.
- Frameworks: ASP.NET, SQL Server , Language: C#

WORK EXPERIENCE

Kwench Global Technologies Pvt. Ltd. Noida, Uttar Pradesh

Software Engineer

Oct. 2017 - Apr. 2018

- Developed Workplace Bots in a team that is Product Partner of Workplace, an enterprise connectivity platform by Facebook.
- Worked on the Reward and Recognition Platform that is trusted by over 500 companies across 63 countries.
- Developed rules for the Reward Platform, which helps provide the clients with numerous configurations of the Reward System of their choice with no change in the code.

Novoinvent Softwares Pvt. Ltd. Noida, Uttar Pradesh

Software Engineer

Jul. 2017 - Sep. 2017

- Worked on a US government insurance project for the state of Maryland, “Maryland Health Connection” which is the state’s official health insurance marketplace for individuals and families to compare and enrol in health insurance.

Software Development Centre (Software Incubator) Ghaziabad, Uttar Pradesh

Student Co-ordinator/ Software Engineer

Aug. 2014 - May 2017

- Developed a Biometric Attendance System for the faculty and staff of Ajay Kumar Garg Engineering College (AKGEC), Ghaziabad.
- Developed and maintained more than 10 portals, websites and platforms related to AKGEC.
- Web Team Member, Event Organiser: Tech Trishna'15, the annual national technical festival of AKGEC, which saw a footfall of 1500+ participants.
- Developed an online registration and slot booking portal in the Blood Donation Camp, 2016 & 2017.

My Own Space Research Consultancy

Ghaziabad, Uttar Pradesh

Student Intern

Jun. 2016 - Jul. 2016

- Designed and developed a website that provides an easy solution to buyers for accessing reviews for any property and helps them make the correct decision.

Sarvodya Ventures

Ghaziabad, Uttar Pradesh

Student Intern

Jun. 2015

- Worked on a live portal that connects transporters, truck drivers, customers and other related entities.

EXTRACURRICULAR ACTIVITIES & ACHIEVEMENTS

- **Student Placement Manager**, Training and Placement Cell, IIT Indore, Sep. 2019 - Aug. 2021
- **Member**, Postgraduate Academic Council, IIT Indore, Nov. 2020 - Feb. 2021
- **Instructor**, in **Rashtriya Avishkar Abhiyan**, an initiative by **Ministry of Education**, Aug. 2019
- **Student Co-ordinator**, Software Development Center (R&D center of college), Aug. 2014 - May 2017
- **2nd Runner-up**, Coding event conducted by Codechef Campus Chapter of college, Apr. 2017
- **Finalist**, Technical Quiz, “QuizUp” in Tryst, IIT Delhi, Feb. 2017
- **Winner**, Anti-Ragging Poster Making Competition, Aug. 2015
- **Winner**, Techno-managerial event, “The Last Strike”, Feb. 2015
- **Co-ordinator**, Workshops on WordPress and classes on Python, ASP.Net, Aug. 2014 - May 2017