Andhra Maha Vishnu Kakumani

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EDUCATION

MSc. Global Air Pollution & Health: Management & Science   **09/2017 - 09/2019**
King's College London, London, UK   *Merit (69%)*

- <u>Dissertation</u>: Temporal analysis of non-exhaust road traffic emissions in London and Swansea based on particulate matter (PM_{10}), heavy metals and traffic data, using data wrangling, Mann-Whitney test, Deming regression and Theil-Sen estimator; *received a distinction with 75%* [R]
- Designed a measurement programme to assess air pollution changes from the transformation of Waterloo roundabout to a horseshoe junction based on the *London Atmospheric Emissions Inventory* data and national air quality directives using Leopold matrix method [QGIS, R, Office]
- Delivered a lecture on India's air pollution control systems including *source apportionment*, chemical transport modelling, air quality legislation, sensor technology and CPCB Sameer app
- Analysed *spatio-temporal air pollution exposure* data for all possible routes between home and school in London and found that the quietest cycling route was the most beneficial in terms of health, safety and time using dynamic exposure modelling [QGIS, CycleStreets API, R, Office]
- Examined the *Graded Response Action Plan* measures against air pollution in New Delhi, India and concluded that the Badarpur thermal power station must be closed in summers instead of winters based on strong evidence of secondary particulate formation using $SO_2/PM_{2.5}$ ratios [R]
- Outlined the epidemiological and *toxicological evidence* including carcinogenicity classification by IARC in 2013 for reducing the current particulate matter air quality guidelines of WHO (2005)

BTech. Civil Engineering (Minor: Economics)   **08/2010 - 07/2014**
Indian Institute of Technology Madras, Chennai, India   *First Class (7.03)*

- <u>Thesis</u>: Applied principal component regression analysis to the criteria pollutants, road traffic and meteorological data for forecasting the next day's PM_{10} concentrations [SPSS, MS Office]
- Estimated the fuel consumption and CO_2 emissions in Greater London based on mode share, passenger kilometers, emission rates and the energy efficiency of land passenger modes data
- Courses: Urban Transport & Environment, Models of Water & Air Quality, Financial Economics
- Secured a National Rank of 1708 in IIT-JEE (2010) out of 500,000 candidates (*99.7 percentile*)

Coursera. The Deep Learning Specialization   **05/2019 - 11/2019**
deeplearning.ai, California, USA   *100%*

- Completed the 5-course artificial intelligence specialisation which broadly covers deep neural networks, *structuring ML projects*, RNN, CNN and sequence models [Python, Git, TensorFlow]
- Developed a profound knowledge of the best AI algorithms and mastered deep learning from foundations (neural nets) to applications such as c*omputer vision and geographic data systems*

AWARDS AND ACHIEVEMENTS

- 1/9 of 400+, prize-winner of the most prestigious *Principal's Global Leadership Award* of King's
- 1/5 of 100+, secured King's India Master's Scholarship, GBP 5000 towards college tuition fees
- 1/9 of 50+, awarded a student opportunity fund to attend the *Royal Society of Chemistry* event
- 1/7 of 50+, won the best technical presentation award on 'Pollution Mitigation' from NPL (India)
- 1/8 of 90+, received *full financial aid* on Coursera for air quality data science e-learning courses

TECHNICAL SKILLS

Programming languages: R (advanced), Python (intermediate), SQL (intermediate) and Git (familiar)
Tools/Packages: MS Office, QGIS, RStudio, ADMS, GAINS, SPSS, STAAD.Pro, openair – advanced
Operations: Workshops, Surveys, Digital Media, Mobile Apps, Consultations, Webinars, Conferences

LANGUAGE PROFICIENCY

- English (Professional working), Hindi (Professional working) and Telugu (Native or bilingual)

WORK EXPERIENCE

Trainee Engineer, QCI-NABET Air Quality Functional Area Associate   05/2016 - 08/2017
Aarvee Associates, Hyderabad

- Lead member for preparing the EA&EMP report of Priority Roads at Amaravati Capital City as per the World Bank guidelines – OP 4.01, OP 4.04, OP 4.36, OP 4.37, OP 4.12, OP 7.60, etc.
- Prepared EA&EMP reports for *metro rail and national highway projects* while delivering the expectations of stakeholders like clients, funding agencies (KfW, GoI), management and public
- Coordinated baseline assessment studies, estimated the impact on air quality and prepared several *air quality management plans* for infrastructure master plan and detailed project reports
- Developed air quality index and designed an interactive AQI map for Strategic Environmental Assessment of Amaravati Capital Region (8386.09 km^2) in Andhra Pradesh, India – £2million
- Delivered a technical talk in front of 200+ people on data-driven sustainable solutions for road dust control at the environmental conference organised by *National Physical Laboratory, India*
- Generated £4m by automating the analyses of complex regulatory environmental data of heavy civil infrastructure projects like Nagpur Metro Rail and Goa National Highways using Excel VBA
- Developed technical bid documents alongside the Business Development team for Kakinada Smart City Project, scored highest points (85/100) and bagged the firm's 1st Smart City Project

Intern, Water & Effluent Treatment   05/2013 - 07/2013
Larsen & Toubro Construction, Headquarters, Chennai

- Designed an overhead water tank better known as Intze tank using STAAD.Pro and IS codes
- 1/3 of 90+, secured 'S' (10/10) grade for accurate structural design and robust technical report

Intern, Small Enterprise Finance Centre   11/2012 - 01/2013
Institute for Financial Management and Research, Chennai

- Developed a cooperative business model using cost-volume-profit analysis to transform the local villages within an integrated business city, M/s. Sri City, into self-sustainable communities
- The model was successfully implemented in a cluster of 3 villages (4000 families) and enabled 50+ villagers to start their own scalable businesses while creating 40 logistics jobs in 6 months

POSITIONS OF RESPONSIBILITY

Student Ambassador, Faculty of Life Sciences and Medicine   10/2017 - 10/2019
Faculty Marketing Team, King's College London   *Part-time*

- Promoted and *enhanced the reputation of King's* using social media and online marketing tools
- Contributed to 5 articles on funding opportunities for the benefit of prospective faculty students
- Supported the marketing team in organising 3 admission events for postgraduate programmes

Lead Volunteer   08/2014 - 01/2015
Indian Institute of Technology Madras

- Member of air quality research group and *coordinated a training event* on 'Air Quality Modelling'
- Assisted Prof. Shiva Nagendra in creating course materials and teaching CALINEpro tutorials

General Secretary   04/2012 - 05/2013
Mandakini Hostel, Indian Institute of Technology Madras

- *Elected by a 300+ strong electorate* and represented the dorm at the Students Affairs Council
- Organisation skills: coordinated a team of 15 including the council members and succeeded in annual inter-dorm sports (5th), technical (2nd) and cultural (7th) competitions against 19 dorms

EXTRA CURRICULARS

- *Member of the MRC Centre for Environment and Health, Imperial College London*
- Institute Hockey 'B' Team, Indian Institute of Technology Madras for two consecutive years

INTERESTS

- Travelling, Air Quality Management, Artificial Intelligence, Harvard Business Review, Avifauna