

Rohan Sukumaran

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RESEARCH INTERESTS	Machine Learning, Adversarial Machine Learning, Computer Vision and Natural Language Processing, Computational Health	
EDUCATION	Indian Institute of Information Technology, Sri City <i>Bachelor of Technology in Computer Science and Engineering</i>	Andhra Pradesh, IN Aug 2016 - June 2020
PUBLICATIONS	<p>P. Patwa, V. Reddy, R. Sukumaran, et al., Can Self Reported Symptoms Predict Daily COVID-19 Cases?, <i>Oral Presentation at AI4SG Workshop IJCAI-21</i></p> <p>R. Sukumaran, et al., COVID-19 Outbreak Prediction and Analysis using Self Reported Symptoms, <i>Journal of Behavioural Data Science</i>, 2021</p> <p>D Tula, P Potluri, S Ms, S Doddapaneni, P Sahu, R. Sukumaran, et al., Bitions@ DravidianLangTech-EACL2021: Ensemble of Multilingual Language Models with Pseudo Labeling for offence Detection in Dravidian Languages, <i>DravidianLangTech Workshop EACL-21</i></p> <p>A. Gupta*, R. Sukumaran*, et al., Hostility Detection and Covid-19 Fake News Detection in Social Media, <i>CONSTRAINT Workshop AAAI-21 - Non archival</i></p> <p>S Shankar*, R Kanaparti*, A Chopra*, R. Sukumaran, et al., Proximity Sensing: Modeling and Understanding Noisy RSSI-BLE Signals and Other Mobile Sensor Data for Digital Contact Tracing <i>ML4MH Workshop NeurIPS-20</i></p>	
UNDER REVIEW	<p>R. Jain, C. Glorioso, U. Gupta, R. Sukumaran, et al., Analysis of Tata-1mg data for covid 2nd wave prediction in India, <i>Journal of the American Medical Informatics Association (JAMIA)</i></p> <p>M. Liu, K. Ramakrishna, C. Zhou, S. Manukonda, R. Mantena, R. Raskar, M. Morales, T. Kingsley, S. S. Feldman, R. Sukumaran, et al., Clustering and classification-based review of post-Emergency Use Authorization COVID-19 vaccines' safety from the Vaccine Adverse Reporting System (VAERS), <i>Journal of the American Medical Informatics Association (JAMIA)</i></p>	
RESEARCH EXPERIENCE	Data Science and Privacy , PathCheck Foundation (MIT spin-off) <i>Advisor - Prof. Ramesh Raskar - MIT Media Lab</i>	Cambridge, MA Dec 2020 - Present
	<ul style="list-style-type: none">• Research Manager - Co-leading the Data Science and Privacy teams in various research projects towards publication and/or grant opportunities.• Working as on ML based methods for pandemic forecasting• Developed a privacy preserving ML benchmark for private collaborative inference - work under review at NeurIPS Datasets and Benchmark Track.	
	Applied Research , Swiggy <i>Advisor - Sundeeep Teki, Ph.D (Ph.D UCL, post-doc Oxford)</i>	Bangalore, IN Feb 2020 - May 2020
	<ul style="list-style-type: none">• Implemented and deployed a novel knowledge distillation model based on Transformer architecture for product category classification. Used semi-supervised learning and weak supervision to handle the large unlabelled corpora.	

	<ul style="list-style-type: none"> Developed a pipeline for zero shot classification of customer intent in code-mixed chat conversations 	
ADVISING EXPERIENCE	Co-advised a cohort of undergraduate students for a project titled Tula, D. et al. Offense Detection in Dravidian Languages using Code-Mixing Index based Focal Loss and Cosine Normalization under review at Springer Nature Computer Science Journal.	
TEACHING ASSISTANT	Information Retrieval Database Management Systems Programming in C	Prof. Rajendra Prasath (<i>Ph.D IIT Kharagpur</i>) Prof. Prerana Mukherjee (<i>Ph.D IIT Delhi</i>) Prof. Venkatesh Vinayakarao (<i>MS CMU, PhD IIIT Delhi</i>)
PROJECTS	Semi-supervised knowledge distillation for product category identification Jan 2020 - Apr 2020 <ul style="list-style-type: none"> Deployed a model with 33x fewer parameters into production for product category identification. Made use of a large corpus of unlabelled data, with semi supervised learning and weak supervision to enhance the robustness and performance of the Transformer models. Deviations in Predicted SARS-CoV-2 - “Case declines in the US in early 2021 relate to variants B.1.526 and B.1.526.2” Mar 2021 - July 2021 <ul style="list-style-type: none"> Analyzed the role of variants of COVID-19 in the unexpected increase in COVID-19 cases at New York. Made use of regression based models to validate the role of variants. Currently, drafting the paper for submission towards the <i>British Medical journal (BMJ)</i> 	
PROFESSIONAL EXPERIENCE	OpexAI LLC <i>Artificial Intelligence Developer</i>	Bangalore, IN May 2018 - July 2018
	<ul style="list-style-type: none"> Built a scalable crowd analytics module using MASK R-CNN for analysing attentiveness of large crowds using mounted cameras during large scale expos. Developed a computer vision algorithm to identify damaged parts of a car for easier processing of insurance claims. 	
AWARDS AND GRANTS	<ul style="list-style-type: none"> Honorable mention in the Trinity Challenge for our solution of <i>Privacy preserving crowdsourced epidemiology</i> across 350+ teams globally. Top 5 across the world in Facebook Data for Good - COVID-19 Symptoms Survey Challenge across 35 teams. Top 10 in first round of XPRIIZE Pandemic Response Challenge globally across 300+ teams. Conference Grant/Scholarship to attend ICLR 2021, ICML 2021, MLHC 2021 2 posters accepted at the Michigan AI Symposium 2020. Project on Diabetic Retinopathy Detection selected as top 20 projects across India selected by Google AI. Central Board of Secondary Education - top 99%tile in the country (AISSE). 	
SKILLS AND TOOLS	<ul style="list-style-type: none"> Languages : Python, R, JavaScript, HTML, CSS, SQL, \LaTeX Libraries and Frameworks : PyTorch, TensorFlow, Scikit - Learn Applications and Tools : Docker, Jira 	
VOLUNTARY WORK	<ul style="list-style-type: none"> Program committee member of CONSTRAINT workshop AAAI 21 Reviewer at the DravLangTech workshop at EACL 21, CONSTRAINT workshop at AAAI 21 and SemEval Task COLING 20. 	

LEADERSHIP
EXPERIENCE

- Organizing committee member of the “Vaccines for all” conference by Trusted Pandemic Technologies and MIT.
- **Google AI Explore ML Facilitator** - Taught ML basic, intermediate and advanced courses to 600+ students.
- **Founding head** of AI ML club at the Indian Institute of Information Technology, Sri City.
- **Secretary, TechFesia** - First international technical festival of Indian Institute of Information Technology, Sri City - with 1000+ participants.