Website : https://rsk97.github.io/
Email : rohan.s16@iiits.in

Rohan Sukumaran

RESEARCH
INTERESTS

Privacy Preserving Machine Learning, Adversarial Machine Learning, Graph Neural Networks, Agent Based Modeling, Computational Health

EDUCATION

Indian Institute of Information Technology, Sri City   Andhra Pradesh, IN
Bachelor of Technology in Computer Science and Engineering   Aug 2016 - June 2020

PUBLICATIONS

R. Sukumaran, et al., **COVID-19 Outbreak Prediction and Analysis using Self Reported Symptoms**, *Journal of Behavioural Data Science*, *2021*

R. Sukumaran, et al., **Enhanced Text Classification using Proxy Labels and Knowledge Distillation**, *short paper* **ACM CODS-COMAD**, 2021

A. Gupta*, **R. Sukumaran***, et al., **Hostility Detection and Covid-19 Fake News Detection in Social Media**, *CONSTRAINT Workshop* **AAAI-21**

P. Patwa, V. Reddy, **R. Sukumaran**, et al., **Can Self Reported Symptoms Predict Daily COVID-19 Cases?**, *Oral Presentation at AI4SG Workshop* **IJCAI-21**

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**, *DravidianLangTech Workshop* **EACL-21**

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** *ML4MH Workshop* **NeurIPS-20**

UNDER REVIEW/
IN-PROGRESS

P. Nandakishore, M. Liu, R. Prakash, S. Gourneni, **R. Sukumaran**, et al., **Deviations in Predicted cases in the US during early months of 2021 relate to rise in B.1.526 and its family of variants**, under review - *British Medical Journal (BMJ)*

R. Jain, U. Gupta, S. TV, **R. Sukumaran**, et al., **Analysis of Tata-1mg data for covid 2nd wave prediction in India**, under review - *Journal of the American Medical Informatics Association (JAMIA)*

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)**, under review - *Journal of the American Medical Informatics Association (JAMIA)*

A. Singh, V. Sharma, J. Mose, **R. Sukumaran**, et al., **Reconstruction Benchmark for Obfuscated Representation**, *to be submitted to IJCAI 2022*

D. Tula*, **R. Sukumaran***, et al., **EfficientBN: Curriculum Learning for Progressive Training of ONLY Batch Normalization**, *to be submitted to ICML 2022*

A. Chopra*, A. Rodriguez*, **R. Sukumaran**, et al., **Differentiable Agent-based Simulations for Macro Predictions via Micro Explanations**, *to be submitted to ICML 2022*

AWARDS AND
GRANTS

- **Global Finalist** in the **MIT SOLVE** Health Security and Pandemics Challenge for our solution - *Crowdsourced Epidemic Analytics via Citizen Engagement* - across 3,600+ applicants **globally**.

- **Honorable mention** in the Trinity Challenge for our solution of *Privacy preserving crowdsourced epidemiology* across 350+ teams **globally**.
- **Top 3** across the world in **Facebook Data for Good** - COVID-19 Symptoms Survey Challenge across 35 teams.
- **Top 10** in first round of **XPRIZE Pandemic Response Challenge** globally across 300+ teams.
- Conference Grant/Scholarship to attend IJCAI 2021, ICLR 2021, ICML 2021, MLHC 2021
- 2 posters accepted at the **Michigan AI Symposium 2020**.
- Got **letter of appreciation from Google AI** for being one of the top facilitators in the cohort! Check the letter out here
- Project on Diabetic Retinopathy Detection selected as top 20 projects across India selected by **Google AI**.
- Central Board of Secondary Education - **top 0.05%tile** in the country (AISSE).

RESEARCH EXPERIENCE

Data Science and Privacy, PathCheck Foundation (MIT spin-off) — Cambridge, MA
*Advisor - Prof. Ramesh Raskar - **MIT Media Lab*** — Dec 2020 - Present

- **Research Manager** - Co-leading the Data Science and Privacy teams in various research projects towards publication and/or grant opportunities.
- Co-founded the **Data Informatics Center for Epidemiology (DICE)** at PathCheck, with *Prof. Manuel Morales - University of Montreal, Quebec* and *Prof. Sue Fieldman - University of Alabama, Birmingham*, as ***Deputy Director - Scientific Programs (Research)***.

Applied Research, Swiggy — Bangalore, IN
Advisor - Sundeep Teki, Ph.D (Ph.D UCL, post-doc Oxford) — Feb 2020 - May 2020

- 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.
- Developed a pipeline for zero shot intent classification of code-mixed customer conversations

ADVISING EXPERIENCE

Co-advised a cohort of undergraduate students for a project titled **Offense Detection in Dravidian Languages using Code-Mixing Index based Focal Loss and Cosine Normalization** , currently in R&R with minor revisions at the Springer Nature Computer Science Journal.

TEACHING ASSISTANT

Information Retrieval	Prof. Rajendra Prasath (*Ph.D IIT Kharagpur)*
Database Management Systems	Prof. Prerana Mukherjee (*Ph.D IIT Delhi)*
Programming in C	Prof. Venkatesh Vinayakarao (*MS CMU, PhD IIIT Delhi)*

PROFESSIONAL EXPERIENCE

OpexAI LLC — Bangalore, IN
Artificial Intelligence Developer — May 2018 - July 2018

- 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 car parts for insurance claims.

VOLUNTARY WORK

- Reviewer at the DravLangTech workshop at EACl 21, CONSTRAINT workshop at AAAI 21 and SemEval Task COLING 20 and volunteer at IJCAI 2021
- Organizing committee member of the "Vaccines for all" conference by Trusted Pandemic Technologies and MIT.

LEADERSHIP EXPERIENCE

- **Google AI Explore ML Facilitator** - Taught basic to advanced ML to **700+** 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.