THRUPTHI ANN JOHN

PUBLICATIONS AND PATENTS

- **Thrupthi Ann John,** Vineeth N Balasubramanian and C. V. Jawahar, *"Explaining Deep Face Algorithms Through Visualization: A Survey,"* in *IEEE Transactions on Biometrics, Behavior, and Identity Science*, (IEEE T-BIOM) 2023
- **Thrupthi Ann John**, Isha Dua, Vineeth N Balasubramanian, C. V. Jawahar. *"ETL: Efficient Transfer Learning for Face Tasks"*, 17th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP) 2022
- **Thrupthi Ann John**, Vineeth N Balasubramanian, C V Jawahar. *"Canonical Saliency Maps: Decoding Deep Face Models.*" IEEE Transactions in Biometrics, Behaviour and Identity Science, (IEEE T-BIOM) 2021
- <u>Patent granted:</u> *System and Method for Generating Gaze Mapping Dataset and Predicting Gaze Point on Environment.* Inventors: C V Jawahar, Isha Dua**, Thrupthi Ann John.** Patent number: 560066
- Isha Dua, **Thrupthi Ann John**, Riya Gupta, C V Jawahar "DGAZE: Driver Gaze Mapping on Road", IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2020,
- **Thrupthi Ann John**, Vineeth N Balasubramanian, C. V. Jawahar "**DashGaze: Driver Gaze Through DashCAM**" *under review*

DATABASE CONTRIBUTIONS

- **DGaze**: simulated driver gaze dataset <u>link</u>
- **DashGaze:** Large-scale naturalistic appearance-based driver gaze estimation through dash-cam. (under review)

TALKS AND TEACHING ACTIVITIES

- Lecture on 'Explainable AI' and 'Practical introduction to GenAI applications' in 'DRDO Advanced Training Program on AI/ML', 2024
- Content creation and talk on labs in the 'Two-week Executive Training Program on AIML' 2023 by iHub-Data for DRDO scientists.
- Talk on 'Explainable AI For Faces' at Mercedes Benz RnD India
- Syllabus creation and TA for Foundations in Modern Machine Learning course by iHub and CVIT
- Content creation and talk on labs on Generative Adversarial Networks for CVIT Machine Learning Summer School and Computer Vision Summer School in 2017 and 2018

SELECTED PROJECTS

Daredevil
We created a system that turns images from a mobile phone camera to sounds that assists visually impaired people to navigate.

Feature Selection for Instance Retrieval using Sparse Ranking SVM
We formulate bag-of-visual words vocabulary pruning as a convex optimization problem that uses the structure of the vocabulary to enforce group-based sparsity on the vocabulary elements. The decrease in memory enables retrieval on low-powered devices without internet access.

DGaze: This project involved creating a dataset and estimating the driver's gaze using appearance-based methods. We we created a lab environment mimicking real-world driving to collect the dataset. <u>link</u>

DashGaze: As a continuation of Dgaze, we created a large-scale naturalistic dataset using real driving, consisting of 0.9M images (10 hours of driving with 28 drivers). We used a dashboard-mounted camera which simultaneously captured the road and driver views, as well as Pupil Invisible eye tracker, which has an ego camera. As part of our dataset building, we developed algorithms to align the fixed dashcam with the rapidly moving egocam.

EXPERIENCE

Research Assistant:
International Institute of Information Technology Hyderabad (July 2013 – Decmeber 2014)

Software Development Engineer in Test (Microsoft):
Microsoft India R&D Pvt. Ltd. (June 2011 – June 2013)

EDUCATION

M.S and Ph.D. Computer Science (Integrated) (July 2013 – December 2024)
International Institute of Information Technology Hyderabad

Thesis title: Interpretation and Analysis of Deep Face Algorithms: Methods and Applications (CGPA 8.86/10)

Bachelor of Technology in Computer Science (2007-2011)
National Institute of Technology Warangal (CGPA 8.00/10)

Senior Secondary School, Scienc (CBSE)
Our Own English High School, Sharjah, 2006 – 2007 (84.8/100)

Secondary School, CBSE
Our Own English High School, Sharjah, 1997 – 2007 (81.6/100)

AWARDS

• **Microsoft Garage India AI Network Summit Hackathon 2017** -3rd place among 84 teams across India

• **Visvesvaraya Ph.D. Scheme scholarship 2015-2020** (Ministry of Electronics and Information Technology, Government of India)

• **Scholarship Programme for Diaspora Children 2007** (Ministry of External Affairs, Government of India)

REFERENCES

- **Prof. C. V. Jawahar (PhD advisor)** Email: jawahar@iiit.ac.in
- **Prof. Vineeth N Balasubramanian (PhD advisor)** Email: vineethnb@iith.ac.in
- **Dr. C K Raju** Email: raju.ck@ihub-data.iiit.ac.in
- **Dr. Pritish Mohapatra** Email: pritmoh@amazon.com

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- SCOPUS: https://www.scopus.com/authid/detail.uri?authorId=57219544038
- DBLP: https://dblp.org/pid/234/7897.html