

GAUTHAM KRISHNA GUDUR

Data Scientist | Independent Researcher | Applied ML/DL | Ubiquitous, Wearable Computing

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EXPERIENCE

Data Scientist

ERICSSON

Feb 2019 – Ongoing

Chennai, India

- Currently a part of Global AI Accelerator (GAIA) - Ericsson R&D, working on Machine Learning for Network Intelligence broadly in the space of telecom and IoT.
- Working on projects like time-series anomaly detection, red-cell detection during busy hours, failure prediction of Mean Time to Connect (MTTC), etc. for various mobile, broadband service providers.
- Developing an open-source anomaly detection framework for ease of access to existing/novel algorithms for data scientists, stakeholders.

Machine Learning Engineer

SMARTCARDIA (EPFL)

May 2018 – Nov 2018

Chennai, India

- Developed insightful machine learning, deep learning models for analyzing biomarkers like Sleep apnea, Troponin, Hemoglobin, Blood Pressure & Glucose, to provide unique insights into patients' health.
- Engineered features for imbalanced time-series clinical data, and modeled classification & regression architectures using tree-based ensembled models and Recurrent neural networks (LSTMs).

Research & Teaching Assistant

SOLARILLION FOUNDATION

Feb 2016 – June 2018

Chennai, India

- Co-led a team of four to develop Deep Learning ensemble models for Human Activity Recognition (HAR) system on constrained devices.
- Developed a real-time Movie Occupancy Prediction engine in collaboration with one of the top 3 Indian movie multiplex chains.
- Led a team of five and worked on a Dynamic Gesture Recognition system using accelerometers with Machine Learning approaches.
- Mentored students by helping them develop their problem-solving approaches in programming and embedded systems.

Undergraduate Student Researcher

SSN COLLEGE OF ENGINEERING

Feb 2015 – Mar 2017

Chennai, India

- Worked on a funded HCI research project of Neurocinematics, where real-time cognitive responses of film viewers are captured using EEG.
- Worked on choosing the best-suited mote for two IoT scenarios, by analyzing their RPL performance metrics on a Contiki testbed.

PUBLICATIONS

Conferences/Workshops

- Gautham Krishna Gudur, Prahalathan Sundaramoorthy, Venkatesh Umaashankar, "ActiveHARNet: Towards On-Device Deep Bayesian Active Learning for Human Activity Recognition", 3rd International Workshop on Embedded and Mobile Deep Learning (EMDL '19), ACM MobiSys 2019.

RESEARCH INTERESTS

Applied Machine Learning/Deep Learning

Ubiquitous/Wearable Computing

Activity Recognition On-Device ML

Bayesian ML Active Learning IoT

Sensor-based HCI Time-series Analysis

Computer Vision NLP Healthcare

SKILLS

Programming

Expert Python C/C++

Intermediate Java SQL HTML/CSS

JavaScript Bash

Basic Android R Octave

Hardware & Software

LaTeX Git Arduino Raspberry Pi

Tools & Frameworks

NumPy Pandas TensorFlow Keras

Scikit-learn PyTorch OpenCV NLTK

PySpark Flask Weka AWS

EDUCATION

B.Tech in Information Technology

Anna University

Grad. Apr 2017

Chennai, India

Cum. GPA: 7.41/10 - First Class

Thesis: Intelligent Bus Stop Recognition System [Supervisor: Prof. Srinivasan R]

Courses

Programming & Data Structures: I & II

Operating Systems Data Analytics

Artificial Intelligence Signal Processing

Design & Analysis of Algorithms

Data Warehousing & Data Mining

Database Management Systems

HSC (Class XII)

DAV Higher Secondary School, Gill Nagar

Grad. May 2013

Chennai, India

Scored an overall of 94.25%

- Prahalathan Sundaramoorthy, [Gautham Krishna Gudur](#), Manav Rajiv Moorthy, R Nidhi Bhandari, Vineeth Vijayaraghavan, "HARNet: Towards On-Device Incremental Learning using Deep Ensembles on Constrained Devices", 2nd International Workshop on Embedded and Mobile Deep Learning (EMDL '18), ACM MobiSys 2018.
- [Gautham Krishna G](#), Karthik Subramanian Nathan, Yogesh Kumar B, Ankith A Prabhu, Ajay Kannan, Vineeth Vijayaraghavan, "A Generic Multi-modal Dynamic Gesture Recognition System Using Machine Learning", Springer, Future of Information and Communication Conference (IEEE FICC 2018).
- [Gautham Krishna G](#), Krishna G, Bhalaji N, "Electroencephalography Based Analysis of Emotions Among Indian Film Viewers", Springer, International Conference on Advanced Informatics for Computing Research (ICAICR 2017).
- [G Gautham Krishna](#), G Krishna, N Bhalaji, "Analysis of Routing Protocol for Low-power and Lossy Networks in IoT Real Time Applications", Procedia Computer Science, Elsevier, ICRTCSE 2016.

Posters/Extended Abstracts

- [Gautham Krishna Gudur](#), Prahalathan Sundaramoorthy, Venkatesh Umaashankar "Handling Real-time Unlabeled Data in Activity Recognition using Deep Bayesian Active Learning and Data Programming", MobiUK 2019, University of Oxford [Extended Abstract].
- N Bhalaji, G Krishna, [G Gautham Krishna](#), "Neurocinematics: The Intelligent Review System.", 3rd International Conference on Cognition, Brain and Computation (CBC 2015), Indian Institute of Technology (IIT), Gandhinagar [Poster].

NOTABLE PROJECTS

* Work to be submitted at

Label Generation using Data Programming

Working on leveraging heuristic data labeling functions which are fed into a generative model and fine-tuned by a discriminative model - a data programming paradigm, aimed at ground truth generation for time-series, mobile/wearable sensing tasks [* [UbiComp CPD Workshop '19](#)].

Incremental Continual Learning for Ubiquitous Sensing

Working on modeling an incremental learning scenario for mobile, wearable sensing tasks wherein, the neural network continually updates on-the-fly with new incoming real-time data, while retaining previously learned information (handling catastrophic forgetting) [* [UbiComp CML-IOT Workshop '19](#)].

Intelligent Bus Stop Recognition System [Undergraduate Thesis]

Developed an embedded vision-based bus stop recognition engine, using ConvNets & hybrid nearest-neighbor classifiers to simulate human-like characteristics. Utilized data augmentation and incremental Bayesian Active Learning strategies for bus-stop scalability.

Movie Occupancy Prediction Engine [Solarillion Foundation]

Extracted behavioral features from terabytes of transactional time-series data (~5 years) to forecast the movie occupancy (± 6 MAPE) using tree-based ensemble models and Recurrent neural nets. Deployed the beta application into production.

Competitions/Challenges

- Sussex-Huawei Locomotion Challenge (SHL 2019) - Activity Recognition [* [UbiComp HASCA Workshop '19](#)].
- GermEval 2019 - Shared task on hierarchical classification of German blurbs [* [KONVENS '19](#)].

Kindly visit my website/GitHub for a complete list of projects

MOOCS

- [University of Washington | Coursera](#)
Machine Learning Specialization (4 courses)
A Case Study Approach Regression
Classification Clustering & Retrieval
- [Stanford University | Coursera](#)
Machine Learning
- [UC-San Diego | Coursera](#)
Algorithmic Toolbox Data Structures
- [John Hopkins University | Coursera](#)
R Programming
- [Google | Udacity](#) - Deep Learning
- [Stanford University](#) - CS231n
- [fastai](#) - fastai

HONORS & AWARDS

Scholastic

- 97th percentile in HackerRank (Algorithms Domain)
- Undergraduate Financial Research Grant of INR 24,000 from SSN College of Engineering
- Technical Reviewer of the book titled "Hands-On Meta Learning With Python."
- Certification of Merit for Grade A1 in all subjects in AISSE
- Top 10 percentile in 42nd National Mathematics Talent Competitions

Non-Scholastic

- Event Organizer of "Data Nuggets" - a Data Science event, Invente2k16
- Completed all 10 levels of UCMAS Mental Arithmetic (Abacus)
- Division/State Badminton Player (U-19)
- 29th Rank overall in Grade 3 Keyboard

REFEREES

Dr. Srinivasan Murali

📍 CEO, SmartCardia, EPFL

Dr. Arjuna Sathiaseelan

📍 CEO, Gaius Networks; Ex Director, N4D Lab, University of Cambridge

Vineeth Vijayaraghavan

📍 Director, Solarillion Foundation

Prof. Srinivasan R

📍 Professor, SSN College of Engineering