Saikiran Tharimena

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ABOUT ME

Highly motivated data specialist with a PhD and a Master's in earth sciences with significant multi-disciplinary research experience in data acquisition, wrangling, statistical analysis, and building models leveraging the power of machine learning and deep learning. A critical thinker and expert in data analysis and model inference by adopting emerging technologies. Respected for being a supportive team player as well as a team leader. Excellent at communication evidenced by numerous publications in leading journals including Nature, and Science magazines.

SKILLS

Data Analysis, Machine Learning, Deep Learning, Neural Networks, Feature Engineering, Regression, Classification, Clustering, Time Series Analysis, Prediction, Forecasting, NLP, AutoML, MLOps, Human-in-the-loop pipelines, AWS

TOOLS

- Python
- Keras (TensorFlow)
- Horovod (multi GPUs)
- Scikit-learn
- SQL
- Pandas
- Numpy
- Scipy
- Matplotlib
- Seaborn
- Facebook Prophet
- Matlab
- Bash Scripting

AWARDS

- *U. Southampton Dean's Award for Research*
- *ILIaD Leadership, Management & Team Management Challenge (Winner)*
- *Sustainability Action Award*
- *Vice-Chancellor's Scholarship for PhD*
- *Academic Excellence Award*
- *The Royal Astronomical Society Research Support Grants*

PROFESSIONAL EXPERIENCE

Researcher

University of Vienna / Vienna, Austria / July 2020 – Present

- Expanding machine learning and deep learning models for geophysical exploration
- Data acquisition from multiple sources: field instruments, real-time telemetry, and cloud nodes
- Data QC, analysis, pre-processing and transformation
- Numerical waveform modelling of seismic datasets

JPL Postdoctoral Fellow

NASA Jet Propulsion Laboratory / Pasadena, CA, USA / Feb 2018 – Jun 2020

- Developed Python tools and methodologies for planetary exploration
- Developed Python code for imaging interior structure of Mars
- Resident expert for 3D full waveform modelling
- Developing PyALMA, a python package for computing tidal load numbers of planetary bodies
- Creating, running and curating planet scale wavefield simulation models
- Planet interiors group POC for HPCs: NASA NAS, TACC, SDSC, GCP, AWS

Research Fellow

University of Southampton / Southampton, UK / Feb 2017 – Jan 2018

- Designed Adaptive Difference Engine, an ML algorithm for interpretive modelling of massive seismic datasets
- Participated in PILAB expedition aboard RRS Discovery for recovering instruments from the mid-Atlantic ridge over 34 days
- Co-advised 5 graduate research students
- Managed 100 TB local server for storing and working with datasets and models

LEADERSHIP & PROJECT MANAGEMENT

- ✓ Successfully completed 6 graduate student research projects and current external advisor for 1 PhD student project
- ✓ Expedition leader for field deployment, servicing, and data recovery from instruments in Papua New Guinea
- ✓ Advocated for post PhD work authorization with the UK minister for science and universities leading to reinstatement of post study work permits
- ✓ Jump-started the on-going Eco-Schools Outreach Program at the National Oceanography Centre, Southampton, UK

EDUCATION & PROFESSIONAL DEVELOPMENT

Doctor of Philosophy (Ph.D.)
University of Southampton / Southampton, UK / 2012 – 2017

- Thesis: Global seismic imaging of lithospheric discontinuities using SS precursors
- Developed expertise in numerical and statistical analysis and modelling
- Designed Python and MATLAB tools for data acquisition and pre-processing from the cloud
- Developed a new algorithm that utilizes deconvolution, 3D spatial migration, and data stacking techniques to image the interior of the Earth using ~12 million seismic records
- Reduced computation time of models from a few days to ~6 hours including bootstrapping models for error analysis

Master of Science (MSc.) – *Distinction*
University of Southampton / Southampton, UK / 2011 – 2012

- Thesis: A diagnostic method to estimate mixing in the ocean from the evolution of a passive tracer in tracer coordinates in a 3D numerical ocean circulation model
- Formulated mathematical expression to compute effective diffusivity of tracers across stratified layers
- Achieved 99% accuracy with NEMO model data
- Developed expertise in data analysis, hypothesis testing, and time series analysis

Bachelor of Technology (B.Tech.) – *CGPA 9.06*
Visvesvaraya National Institute of Technology / Nagpur, Maharashtra, India / 2007 – 2011

- Thesis: Urban Spatial Decision Support System (U-SDSS) for groundwater recharge through rainwater harvesting using high-resolution satellite data and GIS
- Gained knowledge and expertise in acquiring, processing, analysing, and synthesizing geo-spatial data
- Intern at the Indian Space Research Organization
  - Programmed C++ code for extracting geomorphological features from digital elevation models
  - Acquired specialization in geo-spatial digital image processing

CERTIFICATION & TRAINING *(click on titles to view certificate credentials)*

Practical Data Science Specialization
Amazon Web Services & Deeplearning.AI

- *Analyse Datasets and Train ML Models using AutoML*
- *Build, Train, and Deploy ML Pipelines using BERT*
- *Optimize ML Models and Deploy Human-in-the-Loop Pipelines*

IBM Machine Learning Professional
International Business Machines Corporation (IBM)

- *Exploratory Data Analysis for Machine Learning*
- *Supervised Machine Learning: Regression*
- *Supervised Machine Learning: Classification*
- *Unsupervised Machine Learning*
- *Deep Learning and Reinforcement Learning*
- *Specialized Models: Time Series and Survival Analysis*

Deep Learning - GPUs
Nvidia Deep Learning Institute

- *Fundamentals of Deep Learning*
- *Fundamentals of Deep Learning for Multi-GPUs*

Agile Project Management
NASA Academy of Program/Project & Engineering Leadership

- *Agile Project Management: Keys to Getting Started*