MUKESH MITHRAKUMAR

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EDUCATION

B.S. IN PHYSICS; Emphasis Electrical Engineering | SOUTH DAKOTA STATE UNIVERSITY | 08.15 – 05.18

Main Courses: Intro to Computer Vision, Intro to Embedded Systems, Linear Circuit Analysis, Digital Systems, Quantum Mechanics, Automatic Controls, Mathematical Physics, Advanced Engineering Mathematics, Linear Algebra, Scientific Computation.

CERTIFICATIONS |

Deep Learning Specialization, ***Andrew Ng's deeplearning.ai***. Grade: 99.7%
Machine Learning with TensorFlow on Google Cloud, ***Google***. Grade: 97.5%
Data Engineering on Google Cloud Platform, ***Google***. Grade: 99.6%
Machine Learning Specialization, ***University of Washington***. Grade: 96.8%
Python Specialization, ***University of Michigan***. Grade: 97.3%
Algorithms Specialization, ***Stanford University***. Grade: 96.0%

PROFESSIONAL EXPERIENCE

* Available in GitHub

DATA SCIENCE MENTOR | THINKFUL | 12.18 – CURRENT

- Mentoring aspiring data scientists participating in Thinkfuls' Data Science Program.

MACHINE LEARNING CONSULTANT | STEALTH MODE STARTUP | 09.18 – CURRENT

- Built a BigGAN demo for the pre-seed round.
- Built a neural network to predict vehicle speed using CNNs, LSTMs and Optical Flow.
- Set up a machine learning algorithm based on image segmentation with FCNNs that labels objects of interest in aerial images (orthomosaics).
- Built a predictive model for future orders that would be placed based on customer id.

MACHINE LEARNING SOFTWARE INTERN |DEEP LEARNING RETREAT | 08.18 – 11.18

- Developing an open source software package to assist radiologists in the evaluation of lesions in CT and MRI scans for multiple organs. *

MACHINE LEARNING ENGINEER | KAGGLE | 01.18 – 08.18

- Modified a RetinaNet package for Object Detection by training over 17 million images in Google Cloud. **Kaggle (Top 100 - Bronze medal)** *
- Implemented a Random Forest Classifier and Multi Output Classifier from sklearn and experimented with LSTM for Visual Relationship identification in Google Cloud. **Kaggle (Top 100 - Bronze medal)** *
- Built an ensemble convolutional neural network to identify a ship or an iceberg from a remotely sensed satellite using TensorFlow, OpenCV, SciKit and Keras for a Log Loss of 0.1574. **Kaggle (Top 16%).** *
- Applied regression and classification models (SVM, Logistic Classification, Gradient boost) to predict what projects will be funded for Kickstarter for 68% accuracy. **Hacker Earth (Top 3%)** *
- Used classification models (Decision trees) to predict whether an ad will get clicked or not for 72% accuracy. **Hacker Earth (Top 6%)** *

DATA ENGINEER INTERN | SYSCO LABS SRI LANKA | 08.17 – 05.18

- Assisted with SQL / No-SQL based database support and worked with Elastic Search.

ELECTRICAL DESIGN ENGINEER | BOBCAT COMPANY | 01.17 – 08.17 AND 06.18 – 08.18

- Provided engineering support including documentation, design, prototype, test, supplier interfaces and manufacturing for next generation compact loaders that led to an increase in net profit by $87 million.
- Created, managed and maintained CAD models and drawing documentations for Electrical systems.
- Provided Controller Area Networks (CAN) programming, troubleshooting and support to prototype assembly and manufacturing through root analysis.

CO-FOUNDER | OIL AT HOME | 01.16 – 01.17

- Bringing convenient oil changes and vehicle maintenance to you.

PHYSICS TEACHING ASSISTANT | SOUTH DAKOTA STATE UNIVERSITY | 10.15 – 01.17 AND 08.17 – 05.18

- Directed recitation sessions on concepts of Mechanics, Thermodynamics, Electricity and Magnetism in simpler terms and clarified doubts to help students grasp concepts.

UNDERGRADUATE RESEARCH ASSISTANT | SOUTH DAKOTA STATE UNIVERSITY | 10.15 – 01.17

- Synthesized a novel magnetic material, analyzed efficiency and tested electronic properties of the material that led to a Journal paper in Applied Physics.
- Fabricated a novel thin film Perovskite solar cell with 10.5% efficiency for a grant by NSF.
- Implemented a multi-layer perceptron in FPGA using Verilog.

PROJECTS

MACHINE LEARNING ENGINEER | PERSONAL PROJECTS | 01.17 – 12.17

- Deployed a TensorFlow model in Google Cloud by acquiring raw data from BigQuery and transforming the dataset using Dataflow to predict taxi fair price for a ride in New York.
- Optimized a Logistic Regression model via Stochastic Gradient Ascent to Extract features from Amazon product review for product sentiment analysis and recommend products with 78% accuracy. *
- Created python modules and shell scripts to wrangle raw data and built pipeline to front-end dashboard using SQL to train machine learning models.
- Trained a boosted ensemble of decision-trees on Lending Club dataset to predict whether a loan will be paid off in full or the loan will be charged off for 71% accuracy. *
- Explored 4 million articles in Wikipedia dataset using the EM algorithm for a Gaussian mixture model and then compared efficiency with Latent Dirichlet allocation and Hierarchical clustering models. *
- Utilized combination of statistics, supervised and unsupervised machine learning to predict about the future sale prices of homes. *

SKILLS

(Experience in years)

- **Programming Languages**- Python (3), C (0.5), MATLAB (0.5), Verilog (0.5).
- **Software Libraries**- Keras (2), TensorFlow (1), PyTorch (0.5), Pandas (2), SciPy (1), SciKit-Learn (1), OpenCV (0.5), NumPy (2), GraphLab (0.5), Matplotlib (1), git (0.5).
- **Database Management**- SQlite (0.5), MySQL (0.5), Google Cloud SQL (0.5), Google BigQuery (0.5), MongoDB (0.5), Mongoose (0.5).
- **Web Development**- HTML (0.25), CSS (0.25), Bootstrap (0.25), JavaScript (0.25), jQuery (0.25), Node.js (0.25), Express.js (0.25).

PUBLICATIONS AND PRESENTATIONS

- **Journal Articles (Peer Reviewed)**
  1. Y. Jin, P. Kharel, P. Lukashev, S. Valloppilly, B. Staten, J. Herran, I. Tutic, **M. Mithrakumar,** B. Bhusal, A. O'Connell, K. Yang, Y. Huh, R. Skomski and D. J. Sellmyer. "Magnetism and electronic structure of CoFeCrX (X = Si, Ge) Heusler alloys". *Journal of Applied Physics 2016; (Vol.120, Issue 5).*