

Soham Chatterjee

Deep Learning | IoT | Quantum Computing
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EDUCATION

NTU, SINGAPORE

M. ENG. IN ELECTRICAL AND
ELECTRONICS ENGINEERING
July 2019 | Singapore

SRM UNIVERSITY

B. TECH. IN ELECTRICAL AND
ELECTRONICS ENGINEERING
May 2018 | India
CGPA: 8.1

PORTFOLIOS

LinkedIn:// [soham-chatterjee](#)
Github:// [soham96](#)
Scholar: [Soham Chatterjee](#)
Website: [csoham.com](#)
Medium: [@csoham358](#)

SKILLS

PROGRAMMING LANGUAGES

- Python
- MATLAB
- C++
- Java
- Android
- Go
- JavaScript
- LaTeX

TOOLS/MODULES

- Scikit-learn
- Keras
- TensorFlow
- Pytorch
- Pandas
- NLTK
- Matplotlib
- Numpy

MICRO-CONTROLLERS

- Arduino
- Raspberry Pi

DIGITAL SIGNAL PROCESSORS

- Piccolo F28027

EXPERIENCE

SAAMA TECHNOLOGIES | RESEARCH ENGINEER

Nov 2017 to Jul 2019 | India

- Deep Learning research engineer with a special focus on Systems, Deployment and Deep Learning Hardware Optimisations.
- Conducted research on adapting Neural Networks for Quantum Computers
- Explored the use of Edge Computing to check product defects in manufacturing lines
- Used CNNs to beat the State of the Art in detecting diseases based on a person's DNA Methylation Profiles. [arxiv:1807.09617](#)

TESLA LAB, NEXT TECH LAB | FOUNDER AND RESEARCHER

Feb 2016 to May 2018 | SRM University, Chennai

- Made an IGBT Smart Switch for smart homes that can be controlled with a smart phone and protect devices from surges. Research paper can be found in [EPH Journal](#)
- Currently working on improving electrical system of a university building using SCADA.
- Developed a system for metered wireless power transfer for Low Voltage Applications

RESEARCH

GALLIUM NITRIDE SEMI-CONDUCTORS | UNIVERSITY OF CAMBRIDGE

Jan 2017

- Using Machine Learning to optimize GaN circuit design by predicting optimum Gate Pulses given other circuit parameters.
- Poster presented at [WiPDA](#), which is the world's biggest Power Electronic Conference.
- Project done with the guidance of [Nikita Hari](#) at University of Cambridge.

DETECTION OF NON-TECHNICAL LOSSES USING ADVANCED METERING INFRASTRUCTURE AND DEEP RECURRENT NEURAL NETWORKS | 17TH IEEEIC

Jun 2017 | Milan, Italy

- Using LSTM networks to perform Sequence to Sequence Learning to Detect Electricity Power Theft.
- Presented at IEEE conference on Industrial and Commercial Power Systems, [IEEEIC](#) held during June 2017
- IEEE Xplore Paper Number - [7977665](#) (Cited Twice)

HACKATHONS

WINNER | SMART INDIA HACKATHON 2016

April 2017 | Ministry of Steel

- Made a Mobile App and an Application in 36 hours that can help detect Electricity Power Theft.
- A user can click a photo of a person stealing power and the Government can then verify it using Machine Learning to check if power was being stolen.
- LSTM's, a kind of Recurrent Neural Networks was used to predict power theft with an accuracy of 74%.

CO-CURRICULARS

- Volunteer '16: Taught underprivileged children at U&I
- Content Writer '16: At Lenovo DoStore, and various other blogs
- Training '16: Southern Generating Station, CESC
- Wordpress '16: Website for buying and selling second-hand books
- Committee Member: Texas Hold'Em Poker, Aaruush '15

AWARDS

- Winner, "Nation Wants to Know", Milan '16
- Runner Up, Technical Quiz, EleKtra '16
- Runner Up, OOPS Programming, Abhilakshya '13

COURSEWORK

- Machine Learning | Stanford: CS229
- Neural Networks by Geoffrey Hinton
- Introduction to Algorithms | MIT 6.006
- Distributed Energy | IEEEEx - Smart-Grid01.x

AREAS OF EXPERTISE

Internet of Things
Machine Learning
Power Electronics
Android App Development
Power Systems
Swarm Robotics

AREAS OF INTEREST

Machine Learning
Deep Learning
Artificial Intelligence
Quantum Computing

COMMUNITIES

Intel Software Innovator
IoT For All
WiMLDS Chennai

TALKS

PyCon MY 2018
PySangamam 2018

PROJECTS

MACHINE LEARNING

GAN TRANSIENTS PREDICTION | JUNE 2017

- Made a Feed Forward Neural Network to perform regression to predict transients in GaN switches.
- Used Numpy, Pandas, Keras, Matplotlib.

ELECTRICITY POWER THEFT PREDICTION | MAR 2017

- Made an LSTM Network to perform classification to predict anomalies in household electricity power usages.

ELECTRICAL

DYNAMIC WIRELESS CHARGING OF ELECTRIC VEHICLES | MAR 2017

- Wireless Power System for Charging Electric Vehicles while they are moving on the road.
- Reduces the need for charging stations and heavy charging equipments

HIGH POWER, HIGH FREQUENCY INVERTER | FEB 2017

- Made a 100 W High Frequency Inverter for a Wireless Power Transfer Project.
- It was tested for a frequency of 12 KHz
- A TMS320C28027F Digital Signal Processor by Texas Instrument was used to give the PWM pulse for the inverter.

IOT

GO SWITCH | AUG 2016

- Created a Novel IGBT Smart Switch for Smart Homes that can be used to switch ON or OFF any home appliance using your Smartphone.
- The Smartphone app can keep a track of the Voltage, Current and the Power consumed by each of your appliances.
- The Switch also has protective functions, which will make MCB's obsolete in the future. The Switch also has protective functions, which will make MCB's obsolete in the future.

ANDROID APP DEV

VIDYUT APP | MAR 2017

- Made an Android app that can be used by the college professors to send notifications to students and upload notes.
- The app was used as apart of the project that won the First Prize at the Smart India Hackathon, 2017

OPEN SOURCE CONTRIBUTIONS

INDICNLP | FEB 2019

- A project to adapt NLP to Indian Languages
- Building open source tools like Speech to Text, Text to Speech, AutoComplete, Tokenizers, Generic Language Models etc. for Indian Languages.
- Currently leading this effort for Bengali and other North Indian Languages.
- [Github://Bangla2Vec](#)

ROSTER | Nov 2018

- A GPU scheduler that can dynamically schedule training tasks to GPUs.
- Roster will start the training of another neural network as soon as the training of the current one has stopped.
- You can also dynamically change the training queue by adding more important training jobs to the front of the queue.