

## WORK EXPERIENCE AND SURVEY

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### Edelweiss Securities Limited

May 2018 - July 2018

- Designed UX and UI for easy access to Transaction Cost Analysis(TCA) report to help traders get actionable insights to enhance and synchronize trading related execution quality, compliance and management.
- Django framework, login, singleTCA, multiple day TCA, downloadable link to summary as a csv file, date, account, portfolio, instrument – This is a keyword line
- Added login authorization, single day and multiple day TCA form on the web app powered by Django
- Created infrastructure for logging errors, warnings and regular django server information
- Reviewed and reengineered the code base for plotting transaction execution plots using python
- Introduced features like embedding the volume traded, hover for more details and colour schemes for different algorithms to help traders compare their performance with the market more efficiently

### Leh Solar Power Plant Survey

June 2019

- Examine the Leh Ladakh conditions for solar growth for further scope in solar setup in Leh
- Survey of 4 solar plants of 12kWp units consisting of I-V sweeps, IR imaging of cells
- Calculated the degradation rate to be .....

### Teaching Assistant of PG course

Jul 2019 to Nov 2019

- Generated artificial random data for various distributions with varying parameters
- Develop online portal for students to access personalized random failure data of devices and predict the nature of failure

## PROJECTS

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### Degradation rate of solar power plants | Dual Degree Project

July 2019 - Present

- To create models for solar cells and find the dependency of parameters on the degradation rate
- Implemented single diode model with five parameters for solar cell on python
- Processed module datasheet values to extract the 5 parameters and then solved diode equation.
- Used Bokeh server to plot the I-V curve interactively with varying parameters sliders.
- Keywords to add : predictive analytics, data science, pv performance, modelling and simulation, reliability,

### Solar module mounting orientation and axis tracking effect

March 2019– April 2019

- Determined the best possible orientation of solar panel for maximum power output in different regions.
- Performed parametric analysis on System Advisor Model software by varying tilt and azimuthal angle.
- Conclusions after analysis in 3 different regions (northern, southern and equatorial) each in 2 seasons (summers and winters):
- Tilt angle should be equal to the latitude angle
- Solar panel should be facing south in northern hemisphere and vice versa but for equatorial region the azimuthal angle for maximum output changes with summer and winter season

### Image compression using wavelet transform algorithm

March 2019 – April 2019

- Implemented image compression algorithm using 4-taps, 2-D Daubechies Wavelet Transform on 512 x 512 grayscale image and reconstructed the image using Inverse Daubechies Wavelet Transform
- Implemented whole system on Cyclone IV-E Altera FPGA using Nios II processor in platform designer interfaced with SDRAM module on-board which is capable of storing input and output image data of large sizes
- Applied low pass and high pass filtering followed by downsampling by 2 on rows and columns sequentially to obtain LL, LH, HL and HH image components
- Implemented thresholding on image and performed Huffman encoding to obtain compressed image data which is decoded and then reconstructed back

#### **Power Amplifier design**

*March 2019 – April 2019*

- Simulated in ADS a 2 stage power amplifier with matching & bias T circuits with unilateral design approach
- Designed, fabricated & tested the PCB using Vector Network Analyzer for gain and bandwidth specifications

#### **Modelling gesture control**

*March 2019 – April 2019*

- Modelled 3-D Gesture Control using ADXL345 Digital Accelerometer interfaced with Arduino board
- Estimated inclination angle of the three axes with an error of less than 5% and plotted the same in real time

#### **IITB-RISC Microprocessor design**

*March 2019 – April 2019*

- Designed a 16-bit system with 8 registers having multi-cycle point to point communication infrastructure
- Synthesized VHDL code integrating the controller-FSM and data path for FPGA demonstration

#### **Portable Solar cum Vibration Energy Harvesting Mobile Charger**

*March 2019 – April 2019*

- Designed a suitable AC-DC converter and a DC-DC Boost converter for vibration and solar circuit output
- Prototyped and tested working model of the charger with optimized size and performance

## **AREAS OF INTEREST**

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- Solar System Design, Finance, Algorithmic trading, Reliability of devices, Data Structure and Algorithm

## **Extra curricular Activities**

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- Gold, GC Badminton
- German Class
- Flute class
- Black belt 1st Dan Shotokan Karate