

POWER GEN BIBLE

General Learning Resources

[Onboarding Doc](#)

 [Power Generation Design Document](#)

[Power Gen Overview](#)

[Power Gen System Diagram](#)

[Solar Budget Sheet](#)

[What's BSP?](#)

[What's SOM?](#)

Array (the panel)

Wiki and confluence!

Youtube videos!

Bypass diodes: <https://www.pveducation.org/pvcdrom/modules-and-arrays/bypass-diodes>

How solar panels work! https://www.youtube.com/watch?v=L_q6LRgKpTw

MPPT Hardware

Power Electronics Hanson lectures:

<https://www.ti.com/video/series/experimental-power-electronics-curriculum-and-reference.html?keyMatch=HANSON>

October 16, 2024 MPPT Video:

<https://drive.google.com/file/d/1On6kleH7whgKUxmdBuVG6OEpE-djS1GU/view?usp=sharing>

<https://docs.google.com/presentation/d/1bhYhrGXDkVv88F4Mcia2nSCfoJu3T51Ym5U0G-o0Bd4/edit?usp=sharing>

October 23, 2024 MPPT Video:

<https://drive.google.com/file/d/1dyxVB-3AdHJtg6K0pGmhTP9ij1CfIK0I/view?usp=sharing>
https://docs.google.com/presentation/d/18_I08mMtP1wov_S4Ixr90cLRMAHeRSQrFB6yJdZ42A/edit

Decoupling Capacitors:

- For DC at 0 frequency

MPPT Firmware

MPPT Algorithms/Software

Global MPPT Based on Machine-Learning for PV Arrays Operating under Partial Shading Conditions Christos Kalogerakis , Eftichis Koutroulis * and Michail G. Lagoudakis

Deep reinforcement learning approach for MPPT control of partially shaded PV systems in Smart Grids

Luis Avila a,*, Mariano De Paula b, Maximiliano Trimboli c, Ignacio Carlucho d

An ANN-Based MPPT Technique for Partial Shading Photo Voltaic Distribution Generation Rakesh Kumar, Naveenkumar Tadikonda, Jitendra Kumar, and R. N. Mahanty

A Deep Reinforcement Learning-Based MPPT Control for PV Systems under Partial Shading Condition

Bao Chau Phan¹, Ying-Chih Lai^{1,*}and Chin E. Lin

<https://spinningup.openai.com/en/latest/algorithms/ddpg.html>

Blackbody

wiki

Blackbody doc stuff -

<https://docs.google.com/document/d/1Yq9Ei0LS6COBldQ5OZrqTHJC5XsiLfe6SuKHfv-BBW4/edit?usp=sharing>

Heliosphere

Eclipse Databases

Eclipse GUI & Backend

Curve Tracer

Lamination Machine

Sharepoint!

Communication Protocols

CAN -

<https://www.ni.com/en/shop/seamlessly-connect-to-third-party-devices-and-supervisory-system/controller-area-network--can--overview.html>

I2C - <https://learn.sparkfun.com/tutorials/i2c/all>

SPI - <https://www.circuitbasics.com/basics-of-the-spi-communication-protocol/>

UART -

<https://www.analog.com/en/resources/analog-dialogue/articles/uart-a-hardware-communication-protocol.html>

Comparing I2C, SPI, and UART -

<https://www.totalphase.com/blog/2021/12/i2c-vs-spi-vs-uart-introduction-and-comparison-similarities-differences/>