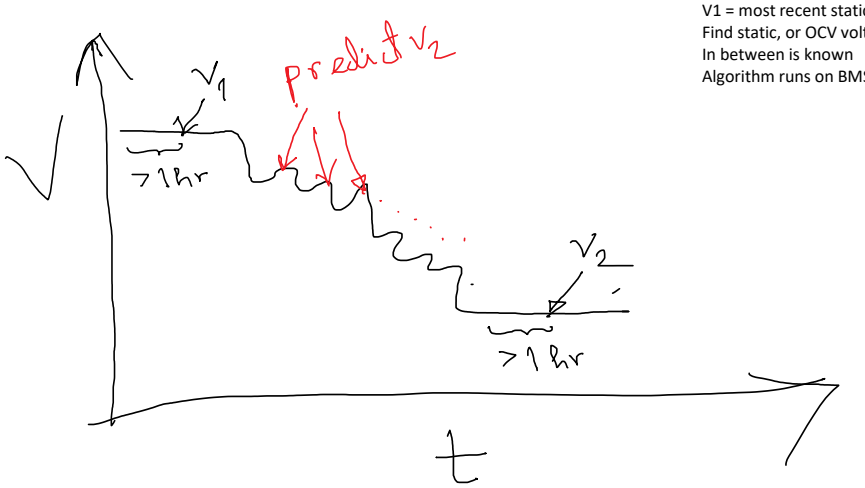
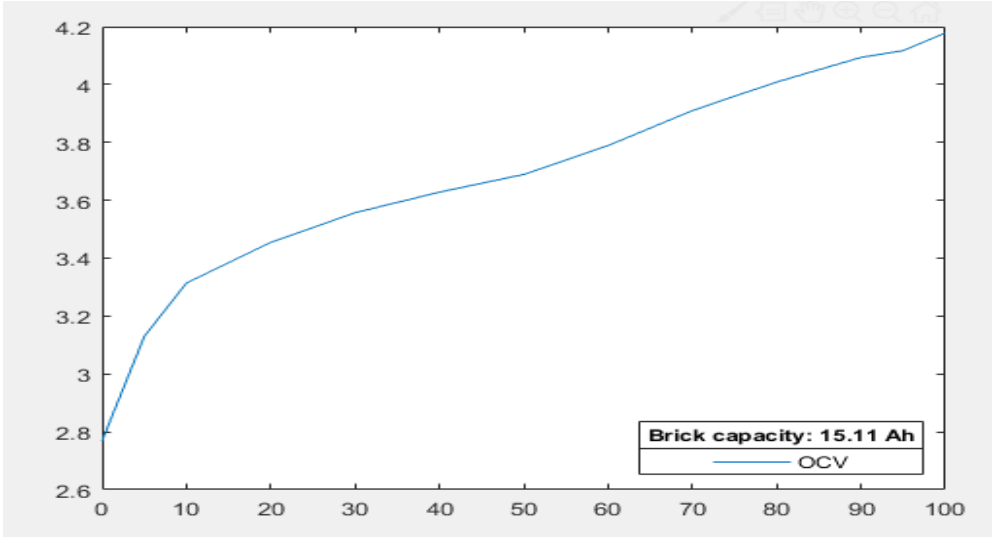
Thesis_note

Thursday, February 10, 2022 11:14 AM

V1 = most recent static voltage
Find static, or OCV voltage V2 at current time when V1 and data
In between is known
Algorithm runs on BMS





OCV

SOC

Idea: put static V2 in this curve to get SOC
Problem: OCV vs SOC curve changes over time due to aging
V2 measurement has to be very accurate because OCV-SOC curve has an almost flat region in the middle

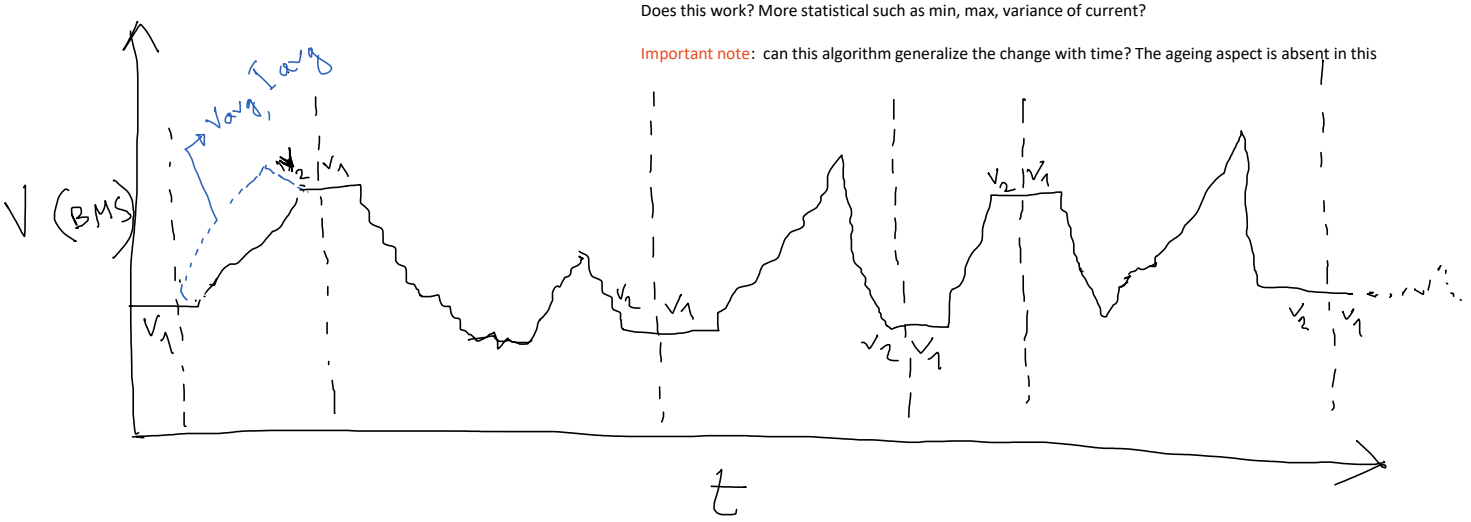
Better solution?
Another algorithm for estimattion of OCV vs SOC curve with historical data
Static voltage and SOC mapping from real data over time: LSTM

Realistic data pattern

Thursday, March 10, 2022 2:06 AM

Deep neural network
Label: v2, input: V, I, T, Vavg, Iavg
Taking average of voltage and current between V1 and V2 (idea from a paper)
Does this work? More statistical such as min, max, variance of current?

Important note: can this algorithm generalize the change with time? The ageing aspect is absent in this



V1	Vavg	Iavg	duration	Temp	Output(V2)
3.6	3.7				

Ideas

Tuesday, March 15, 2022 4:09 PM

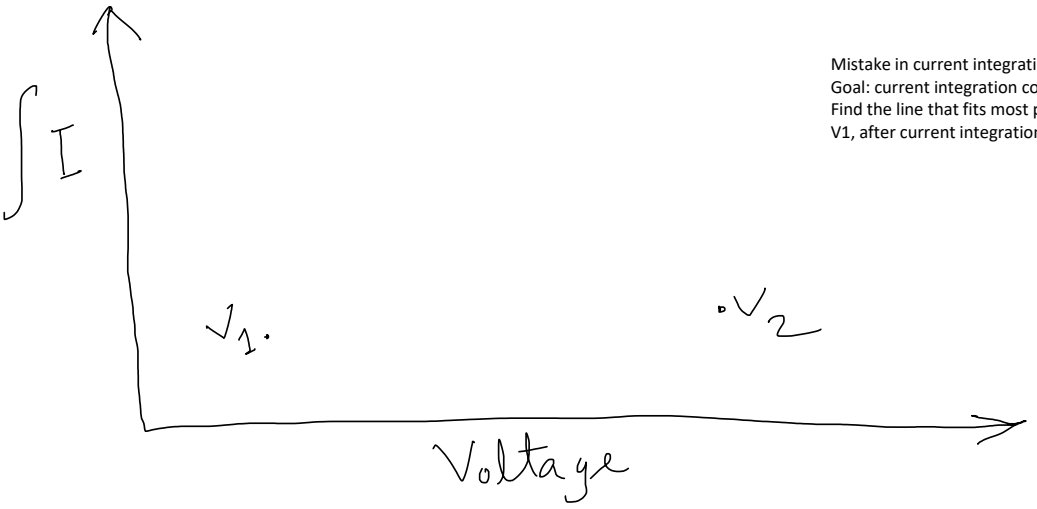
Supervised:

given static and dynamic V. For every time point, converge to static voltage

Reinforcement learning!

How? No SOA of RL for continuous prediction

Learn OCV curve estimation:



Mistake in current integration happens.
Goal: current integration correction factor
Find the line that fits most points and predict OCV on measured value
V1, after current integration, correction with V2