Daily Log

Aryan Dua

June-July 2022

1 Day 1 - 13/06/22

- Saw YouTube videos about convexity and duality, mathematical optimisation
- Went through webpages regarding convex optimisation

2 Day 2 - 14/06/22

- Saw YouTube videos about general optimisation and quasiconvex functions solved a few basic optimisation problems. Made notes about a few important pointers
- Went through the julia language syntax

3 Day 3 - 15/06/22

- Wrote the math to figure out the projection operators on 3 kinds of sets. N-dimensional balls, n-dimensional equations represented by A'X = b, n-dimensional half-planes represented by

$$A'X \leq b$$

- Wrote a running julia code for the above task

4 Day 4 - 16/06/22

- Wrote a running julia code that runs a constrained gradient descent program, when given a function f(x) = x' * A * x + b' * x, and a given domain set.

5 Day 5 - 17/06/22

- Finished the initial set of problems given in notes.pdf, wrote the solutions in my notebook.
- Attended the seminar by Jonathan Eckstein

6 Day 6 - 20/06/22

- Tried to plot my gradient descent program using a projection operator in Julia.
- Had a progress check done with Zev at 2pm
- Started reading about asynchronous programming, and the abstract of the Comb18 research paper.