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- In Sec. 4.1, line 1, change "Problem:" to "In this section we explore a sequential convex relaxation approach to the range based localization problem that you had studied in previous chapters."
- In Sec. 4.1, line 1, change "measurements r_i find" to "measurements r_i, the LS localization problem is to find"
- In Sec. 4.1, line 2, change "the true unknown location of $\boldsymbol{x}$ as" to "the *unknown* location of the radiating device, $\boldsymbol{x}$, by solving the problem".
- 1 line below Eq. (4.2b), change "The constraints in 4.2 is hard to suffice, therefore we allow a relaxation:" to "The constraints in in (4.2b) are difficult to satisfy exactly. This motivates a relaxed set of constraints that lead to the following constrained problem".
- 1 line below Eq. (4.3c), change "where γ is small, typically $0 < \gamma < 0.5$" to "where $\gamma > 0$ is a small scalar, initially set in the range $\gamma_0 \in (0, 0.5)$".
- 1 line below Eq. (4.3c), change "This would yield an approximate solution to 4.2 and therefore to 4.1" to The solution of the problem (4.3) may be taken as an approximate solution of the problem in (4.2), hence of problem (4.1) as well." (Darya, please include brackets throughout the thesis when citing the equation numbers).
- In the last 3 lines of page 52 and the first line of page 53, changebelow Eq. (4.3c), change "By allowing γ to sequentially/monotonically decrease from some small $0 < \gamma 0 < 0.5$ to 0 solution of 4.3 will converge to 4.2. Proof Let $\gamma(k)$ be monotonically decteasing, where k is an iteration count and $0 < \gamma 0 < 0.5$. Then $\lim\gamma\to 0\ (1 + \gamma)z_i = z_i$ and $\lim\gamma\to 0\ (1 - \gamma)z_i = z_i$. Therefore as" to "By allowing γ to sequentially and monotonically decrease from γ_0 to zero, the solution of the problem in (4.3) converges that of the problem in (4.2), because as".

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- In line 3, change "decreasing" to "decreasing in general".
- In line 4, change "the critical" to "a critical".
- In line 5, change "due to nonconvexity of one of its inequality constraint" to "due to the nonconvexity of some of the inequality constraints".
- In line 6, change "The constraint in 4.3b $||\boldsymbol{x} - \boldsymbol{a}_i|| \leq (1 + \gamma)z_i$ is convex, the constraint in 4.3c is not" to "To be precise, the constraints in (4.3b), namely $||\boldsymbol{x} - \boldsymbol{a}_i|| \leq (1 + \gamma)z_i$, are convex, while those in (4.3c) are not" .
- 7 lines above Eq. (4.4a), change "From convexity of the norm $|| \boldsymbol{x} - \boldsymbol{a}_i ||$ it follows that for some" to "Because the norm $|| \boldsymbol{x} - \boldsymbol{a}_i ||$ is a convex function with respect to $\boldsymbol{x}$, it follows that for a".
- 2 lines above Eq. (4.4a), change "At the …" to "In this way, in the …".
- 1 line above Eq. (4.4a), change "an SOCP problem" to "a convex second-order cone programming (SOCP) problem".
- need black space between Eq. (4.4c) and the text below it.
- no indention in the line below Eq. (4.4c).
- In the line below Eq. (4.4c), change "The" to "where the".
- 2 lines below Eq. (4.4c), change "problem 4.4. γ needs …" to "problem (4.4), and γ needs …".

• 2-3 lines below Eq. (4.4c), change "with increase of the iteration count" to "as the iteration proceeds".

• 3-4 lines below Eq. (4.4c), change "Start with some $0 < \gamma_0 < 0.5$, typically $\gamma_0 = 0.3$ or 0.2 is good. After kth iteration update γ_{k+1} linearly as" to "Specifically, a reasonable choice of the value for γ_0 is 0.2 or 0.3, and we update the value of γ_{k+1} linearly as".

• Add the following after the last equation on this page: "where $K_{\max}$ is the number of iterations to be executed."

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• Fig. 4.1 is missing. (or is it a Figure you used in previous chapter? If it is, then just refer to that figure instead).

• Need blank space between Eq. (4.5) and the text below it. The same fix applies to Eq. (4.6). This is a global change, please go through the entire thesis to fix this problem.

• 1 line below Eq. (4.6), change "non trivial" to "non-trivial".

• In the last line of this page and first two lines of page 55, change "It operates by solving an SOCP problem at each iteration to find an increment vector that sequentially moves the initial estimate of the solution towards the minimum" to "The central part of the procedure is a convex quadratic programming (QP) problem that needs to be solved in each iteration to provide an increment vector that updates the present iterate to next towards the solution of the localization problem at hand."

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• In Eq. (4.7), move "$i = 1, 2, \ldots, m$" from (4.7c) to (4.7b).

• A similar problem need to be fixed in Eq. (4.10).

• 3 lines below Eq. (4.7c), change "is a small perturbation to it, such that" to "be a set of small perturbations to the above variables such that".

• 3 lines below Eq. (4.7c), change "and $\beta > 0$" to "where $\beta > 0$".

• 2 lines above Eq. (4.8a), change "need to find" to "seek to find".

• 1 line below Eq. (4.8c), change "remains strictly feasible." to "reduces the objective function in (4.8a) and, at the same time, better satisfies the constraints in (4.8b) and (4.8c)."

• 1 line below Eq. (4.8c), change "At the k + 1th iteration with $\tilde{\boldsymbol{x}}^k$ known the" to "At the (k + 1)th iteration with $\tilde{\boldsymbol{x}}^k$ known, the".

• 3 lines below Eq. (4.9), change "Substituting 4.8b in 4.7b" to "By substituting (4.8b) into (4.7b), the constraints in (4.7b) become".

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• Line 1, change "The constraints" to "These constraints".

• Line 5 and line 6 are identical, delete line 6.

• 7 lines above (4.10a), change "Repeating the similar procedure with the constraint in 4.7c" to "The constraint in (4.7c) can be treated in a similar way as".

• 1 line above (4.11a), change “It is obvious to see that the problem in 4.10 can be written in the following form” to “Clearly, (4.10) is a convex QP problem which can be written more compactly as follows:”

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• Darya, the text (before Section 4.2.3) right after the first equation at the top needs to be revised. You can do so using some part of my write-up with necessary modification for notation consistency.