Typos and Errors In
Linear Algebra and Optimization
with Applications to Machine Learning, Vol. II

by

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May 27, 2022

vii, delete the extra "the" in the paragraph "In Chapter 15 ..."
6, delete the extra "the" in the paragraph "In Chapter 15 ..."
48, Just after Definition 2.25, change "Definition 2.23" to "Definition 2.25"
49, line -9, the first $\|x_n\|$ should be $\|x_1\|$.
53, middle of page, change "anisometry" to "an isometry"
87, middle of page, $(a, b]$ should be (a, b).
119, middle of page, change
$\nabla J(u) + \lambda_1 \nabla \varphi_1(u) + \cdots + \lambda_1 \nabla \varphi_m(u)$ to
$\nabla J(u) + \lambda_1 \nabla \varphi_1(u) + \cdots + \lambda_m \nabla \varphi_m(u)$
120, at the end of Proposition 4.2, change (u, λ) to (u, μ).
120, middle of page, change
"Indeed $dL(u, \mu) = 0$ if equivalent" to "Indeed $dL(u, \mu) = 0$ is equivalent"
121, middle of page, change $(\mathrm{Jac}(J)(u))^\top$ to $(\mathrm{Jac}(\varphi)(u))^\top$.
129, In Part (2) of Theorem 4.3, change "centered at v" to "centered at u." In the proof, change $\epsilon < \alpha$ to $\epsilon < (1/2)\alpha$, and change $v \in (u, w + w)$ to $v \in (u, u + w)$.
132, 2/3 of the page, change "a function if convex" to "a function is convex"
134, in the proof of Theorem 4.4, line 5, change $0 \leq t \leq 1$ to $0 \leq t$.
140, line 6, change "in u" to "at u"
140, in Part (3), line 4, change "in needed" to "is needed"
143, in Problem 4.3, line 1, change "in u" to "at u"
143, in Problem 4.4, delete "in a unique way"
145, first line of Section 5.1, change "for find" to "to find"
149, line 9 and 10, change Δ_k to Δx_k.
152, last line, change"$\|b - a\| < \beta \|b - a\|$" to "$\|b - a\| \leq \beta \|b - a\|$"
162, in Problem 5.5(2) and 5.5(3), change $X_0 A$ to $A X_0$.
170, line 4, change "surjective onto" to "injective into"
170, in Proposition 6.2, line 4, add "$x_0 = A^{-1}b$" between "solution" and "of". In the proof, x should be x_0, except in the last occurrence of $Q(x)$.
181, line -7, change $b^\top A^+ A A^+ b$ to $(1/2) b^\top A^+ A A^+ b$.
189, Problem 6.2, change "surjective onto" to "injective into"
192, bottom matrix, more space needed between the columns
195, bottom of page, change "semidefinire" to "semidefinite"
262, near bottom of page, the pivot is not indicated in red, but by a circle
320, in Proposition 12.4, the first sentence should be "Let E be a Hilbert space and let $X \subseteq E$ be any nonempty convex and closed subset." Then in (1), "For any $u \in E$, there is a unique"
337, in Problem 12.4, change (u, v) to $\langle u, v \rangle$ and $\Lambda_C = \{u \in C \mid h(u) \neq +\infty\}$ to $\Lambda_C = \{u \in V \mid h(u) \neq +\infty\}$.
341, line 6, change $LB(X)$ to $UB(X)$.
341, midle of the page, $J(x) = -x$ should be $J(x) = x$.
350, line 3, add = in front of the line
350, in Theorem 13.2, insert "real" in front of "Hilbert space"
353, in $(*_2)$ and $(*_3)$, change $v \in V$ to $v \in U$. Just after $(*_4)$, change $F \colon V \to V$ to $F \colon U \to U$.
355, middle of page, change "coercice" to "coercive"
358, in (2), line -4, add "Typically, $\rho_k > 0$."
364, in Step 4, line 6, change to "for every $\epsilon > 0$, there is some $\delta > 0$ such that if $\|u_k - u_{k+1}\| < \delta$ then"
364, in Step 4, change $\|w\| \leq 1$ to $\|w\| = 1$.
370, line 4, change $u \in M$ to $u \in V$.0
370, in Equation $(*)$, change $\rho_k \langle \nabla J_{u_k} - \nabla J_u \rangle$ to $\rho_k (\nabla J_{u_k} - \nabla J_u)$.
371, line 10, delete "we" in front of $\alpha = \lambda_1$.
371, line 10, insert "smallest" in front of "eigenvalue"

372, line 5, change $b \leq 2/\lambda_n$ to $b < 2/\lambda_n$.
380, line -9, the right-hand should be $\inf_{v \in u_k + \mathcal{G}_k} J(v)$.
380, line -3, change $i < j$ to $i \neq j$.
381, in Proposition 13.7, line 5, change $1 \leq i < j \leq k$ to $1 \leq i \neq j \leq k+1$.
381, in the proof of Proposition 13.7, change "is a vector space" to "is a subspace", and "by Theorem 4.4" to "Corollary 4.1".
381, in the proof of Proposition 13.7, change lines -4, -6, -8, change ℓ to $\ell + 1$.
383, line -9, add "where we form these inner products for $j = 0, \ldots, k$, in that order."
385, in the proof of Proposition 13.9, second line, change $A\nabla_\ell$ to Ad_ℓ.
385, line -2, change ∇J_k to ∇J_{u_k} and on line -1 change $\nabla J_{\ell+1}$ to $\nabla J_{u_{\ell+1}}$.
386, after $(*_5)$, change $\langle Av, a\rangle$ to $\langle Av, v\rangle$.
387, in Example 13.3, line 3, the second occurrence of $(x\ y)$ should be $(2\ -8)$.
388, lines 1 and 4, change $\rho_k A d_k$ to $\rho_\ell A d_\ell$.
388, Equation $(*_7)$ should be $r_k = \nabla J_{u_k} = Au_k - b$.
388, in $(*_8)$, change $r_{k+1} = r_k + \rho_k A d_k$ to $r_{k+1} = r_k - \rho_k A d_k$.
388, line -1, change $d_{k+1} = r_{k+1} - \beta_{k+1} d_k$ to $d_{k+1} = r_{k+1} + \beta_{k+1} d_k$.
397, in Problem 13.1, Part (2), change $\langle Au - b, v - u)$ to $\langle Au - b, v - u\rangle$.
403, bottom of page, change "said to be active is" to "said to be active if"
421, after Proposition 14.3, the third sentence should be "then the linear system $Ax = b$ has some solution $x \geq 0$."
430, 1/3rd of page, change "where where " to "where"
469, middle of the page, change "Then any solution" to "Then for any solution"
508, line -8, the inequalities should be $-\infty \leq \alpha < 0$.
519, last line, change "cone" to "convex set"
522, in Proposition 15.10, line 3, change "linear form" to "affine form" and change x to y in "$f(x) \geq \varphi(x)$ for all $x \in \mathbf{R}^n$"
528, in Theorem 15.2, change x to y in $f(x) \geq \varphi(x)$ for all $x \in \mathbf{R}^n$"
529, at the end of the proof of Theorem 15.2, change x to y in "$f(x) \geq \varphi(x)$ for all $x \in \mathbf{R}^n$"
548, line 9, change $\partial(h + I_C)(x) \subseteq \partial h(x) + \partial I_C(x)$ to $\partial h(x) + \partial I_C(x) \subseteq \partial(h + I_C)(x)$
548, in Part (2) of the proof of Proposition 15.26, change "$y \in \partial(h + \partial I_C)(x)$, and by" to "$0 \in \partial h(x) + \partial I_C(x)$, since by"
551, in Theorem 15.10, Clause (2), missing comma in $j = 1, \ldots, p$. In Clause (3), ψ_i should be ψ_j.
593, middle of the page, change "arround" to "around"
642, the $(3,3)$ entry in matrix A should be I_p
650, the $(2,3)$ entry in matrix A should be I_p
676, the $(3,3)$ entry in matrix A should be I_p
677, the $(3,3)$ entry in matrix A_2 should be I_p
692, the $(2,3)$ entry in matrix A should be I_p
728, the $(3,3)$ entry in matrix A should be I_p
729, Problem 18.7, the $(2,3)$ entry in matrix A should be I_p
730, Problem 18.8 the $(3,3)$ entry in matrix A should be I_p
730, Problem 18.8 the $(3,3)$ entry in matrix A_2 should be I_p
751, middle of the page, change "arround" to "around"
763, line -9, change to $\lambda_+ = K\mu_+, \lambda_- = K\mu_-$
766, line -5, delete "can" in "can can"
767, line 3, change to "X20 is a 50×30 matrix"

767, middle of page, Change to "$K = 0.01$ and $\tau = 0.99$", and to "$K = 0.99$ and $\tau = 0.01$."

783, line -12, change b to w