

## 9. References<sup>†</sup>

- [Ada96] F. Adachi, “Theoretical analysis of DS-CDMA reverse link capacity with SIR-based transmit power control,” *IEICE Trans. Fundamentals*, vol. E79-A, pp. 2028–2034, Dec. 1996.
- [Ari93] S. Ariyavisitakul and L. F. Chang, “Signal and interference statistics of a CDMA system with feedback power control,” *IEEE Trans. Commun.*, vol. 41, pp. 1626–1634, Nov. 1993.
- [Ari94] S. Ariyavisitakul, “Signal and interference statistics of a CDMA system with feedback power control - Part II,” *IEEE Trans. Commun.*, vol. 42, pp. 597–605, Feb./Mar./Apr. 1994.
- [Bai94] A. Baier, U.-C. Fiebig, W. Granzow, W. Koch, P. Teder, and J. Thielecke, “Design study for a CDMA-based third-generation mobile radio system,” *IEEE J. Selected Areas Commun.*, vol. 12, pp. 733–743, May 1994.
- [Ban96] Y. J. Bang and S. W. Kim, “A new spreading scheme for convolutional coded CDMA communication in a Rayleigh-fading channel,” *IEEE Trans. Commun.*, vol. 44, pp. 1537–1542, Nov. 1996.
- [Cal88] G. Calhoun, *Digital Cellular Radio*. Norwood, MA, USA: Artech House, Inc., 1988.
- [Cam91] T. G. Campbell and Y. Neuvo, “Predictive FIR filters with low computational complexity,” *IEEE Trans. Circuits and Systems*, vol. 38, pp. 1067–1071, Sept. 1991.
- [Cam96] R. Cameron and B. Woerner, “Performance analysis of CDMA with imperfect power control,” *IEEE Trans. Commun.*, vol. 44, pp. 777–781, July 1996.
- [Car86] A. B. Carlson, *Communication Systems, An Introduction to Signals and Noise in Electrical Communications*. New York, NY, USA: McGraw-Hill Book Company, 1986.
- [Cav97] A. Cavallini, F. Gianetti, M. Luise, and R. Regiannini, “Chip-level differential encoding/detection of spread-spectrum signals for CDMA radio transmission over fading channels,” *IEEE Trans. Commun.*, vol. 45, pp. 456–463, Apr. 1997.
- [Cha94] N. L. B. Chan, “Multipath propagation effects on a CDMA cellular system,” *IEEE Trans. Vehicular Tech.*, vol. 43, pp. 848–855, Nov. 1994.
- [Cha96] C.-J. Chang, J.-H. Lee, and F.-C. Ren, “Design of power control mechanisms with PCM realization for the uplink of DS-CDMA cellular mobile radio system,” *IEEE Trans. Vehicular Tech.*, vol. 45, pp. 522–530, Aug. 1996.
- [Che97] K. Cheun, “Performance of direct-sequence spread-spectrum RAKE receivers with random spreading sequences,” *IEEE Trans. Commun.*, vol. 45, pp. 1130–1143, Sept. 1997.
- [Den93] P. Dent, G. E. Bottomley, and T. Croft, “Jakes fading model revisited,” *Electronics Letters*, vol. 29, pp. 1162–1163, June 1993.

<sup>†</sup> Note on the nomenclature: In the case of several publications from an author on a given year being referenced all at once, references are jointly denoted by omitting the letter following the year. Similarly, all the publications listed from a given author are jointly referenced by omitting also the publication year.

- [Eur93] European Telecommunications Standards Institute, *European Digital Cellular Telecommunication System (Phase 2); Radio Transmission and Reception, GSM 05.05, vers. 4.6.0*. Sophia Antipolis Cedex, France, July 1993.
- [Fan95] J. Fang and L. E. Atlas, “Quadratic detectors for energy estimation,” *IEEE Trans. Signal Processing*, vol. 43, pp. 2582–2594, Nov. 1995.
- [Fre91] A. Freeman and D. M. Skapura, *Neural Networks: Algorithms, Applications, and Programming Techniques*. New York, NY, USA: Addison-Wesley Publishing Company, Inc., 1991.
- [Gan72] M. J. Gans, “A power-spectral theory of propagation in the mobile-radio environment,” *IEEE Trans. Vehicular Tech.*, vol. 21, pp. 27–38, Feb. 1972.
- [Gao96] X. M. Gao, J. M. A. Tanskanen, and S. J. Ovaska, “Comparison of linear and neural network-based power prediction schemes for mobile DS/CDMA systems,” in *Proc. 1996 Vehicular Technology Conference*, Apr. 1996, Atlanta, GE, USA, pp. 61-65.
- [Gao97a] X. M. Gao, X. Z. Gao, J. M. A. Tanskanen, and S. J. Ovaska, “Power control for mobile DS/CDMA systems using a modified Elman neural network controller,” in *Proc. 47th IEEE Vehicular Technology Conference*, Phoenix, AZ, USA, May 1997, pp. 750–754.
- [Gao97b] X. M. Gao, X. Z. Gao, and S. J. Ovaska, “Power prediction using an optimal neuro-fuzzy predictor,” in *Proc. IEEE Instrumentation and Measurement Technology Conference*, Ottawa, Canada, May 1997, pp. 1225–1230.
- [Gao97c] X. M. Gao, X. Z. Gao, J. M. A. Tanskanen, and S. J. Ovaska, “Power prediction in mobile communication system using an optimal neural-network structure,” *IEEE Trans. Neural Networks*, vol. 8, pp. 1446–1455, Nov. 1997.
- [Gao98] X. Z. Gao and S. J. Ovaska, “A temporal difference method-based prediction scheme applied to fading power signals,” accepted for publication in *Proc. 1998 IEEE International Conference on Neural Networks*, Anchorage, AK, USA, May 1998.
- [Gej92] R. R. Gejji, “Forward-link-power control in CDMA cellular systems,” *IEEE Trans. Vehicular Tech.*, vol. 41, pp. 532–536, Nov. 1992.
- [Gib96] J. D. Gibson (ed.), *The Mobile Communications Handbook*. Boca Raton, FL, USA: CRC Press, Inc., and IEEE Press, 1996.
- [Gil91] K. S. Gilhousen, I. M. Jacobs, R. Padovani, A. J. Viterbi, L. A. Weaver, Jr., and C. E. Wheatly III, “On the capacity of a cellular CDMA system,” *IEEE Trans. Vehicular Tech.*, vol. 40, pp. 303–312, May 1991.
- [Gra93] S. A. Grandhi, R. Vijayan, D. J. Goodman, and J. Zander, “Centralized power control in cellular radio systems,” *IEEE Trans. Vehicular Tech.*, vol. 42, pp. 466–468, Nov. 1993.
- [Gra94] S. A. Grandhi, R. Vijayan, and D. J. Goodman, “Distributed power control in cellular radio systems,” *IEEE Trans. Commun.*, vol. 42, pp. 226–228, Feb./Mar./Apr. 1994.
- [Har95] T. Harju and T. I. Laakso, “Polynomial predictors for complex-valued vector signals,” *Electronics Letters*, vol. 31, pp. 1650–1652, Sept. 1995.

- [Has79] H. Hasemi, “Simulation of the urban radio propagation channel,” *IEEE Trans. Vehicular Tech.*, vol. 28, pp. 213–225, Aug. 1979.
- [Has93] H. Hasemi, “The indoor radio propagation channel,” *Proc. IEEE*, vol. 81, pp. 943–968, July 1993.
- [Hei88] P. Heinonen and Y. Neuvo, “FIR-median hybrid filters with predictive FIR substructures,” *IEEE Trans. Acoustics, Speech, and Signal Processing*, vol. 36, pp. 892–899, June 1988.
- [Hua95a] A. Huang, T. I. Laakso, S. J. Ovaska, and I. Hartimo, “Predictive power estimation of complex-valued signals,” in *Proc. 38th Midwest Symp. Circuits and Systems*, Rio de Janeiro, Brazil, Aug. 1995, pp. 953–956.
- [Hua95b] A. Huang, T. I. Laakso, S. J. Ovaska, and I. O. Hartimo, “On schemes for power prediction of complex-valued signals,” in *Proc. 1995 Finnish Signal Processing Symposium*, Espoo, Finland, June 1995, pp. 55–58.
- [Hua96a] A. Huang and T. I. Laakso, “Power estimation approaches for complex-valued signals based on Hammerstein model and Wiener model,” in *Proc. Nordic Signal Processing Symposium*, Sept. 1996, Espoo, Finland, pp. 191–194.
- [Hua96b] A. Huang, T. I. Laakso, S. J. Ovaska, and I. Hartimo, “Optimal linear power estimator for slowly-varying complex-valued signals,” in *Proc. The Third International Conference on Signal Processing*, Oct. 1996, Beijing, China, pp. 76–79.
- [Hua96c] A. Huang and T. I. Laakso, “Optimal design and adaptive implementation of power estimation using Hammerstein model,” in *Proc. IEEE 39th Midwest Symposium on Circuits and Systems*, Aug. 1996, Ames, Iowa, USA, pp. 18–21.
- [Hua97] A. Huang, *Efficient Methods for Power Estimation—Optimization and Implementation*. Licentiate Thesis, Helsinki University of Technology, Espoo, Finland, May 1997.
- [Hua98] A. Huang, J. M. A. Tanskanen, and I. O. Hartimo, “Design and Application of Efficient Optimum Power Estimator Based on Wiener Model for Complex-Valued Signals,” accepted for publication in *Proc. of 1998 IEEE International Symposium on Circuits and Systems*, May 1998, Monterey, CA, USA.
- [Ibn97] M. Ibnkahla, J. Sombrin, F. Castanie, and N. J. Bershad, “Neural networks for modeling nonlinear memoryless communication channels,” *IEEE Trans. Commun.*, vol. 45, pp. 768–771, July 1997.
- [IEE88] IEEE Vehicular Technology Society Committee on Radio Propagation, N. H. Shepherd (Chairman), “Coverage prediction for mobile radio systems operating in the 800/900 MHz frequency range,” *IEEE Trans. Vehicular Tech.*, vol. 37, pp. 3–72, Feb. 1988.
- [Jak74] W. C. Jakes (ed.), *Microwave Mobile Communications*. New York, NY, USA: John Wiley & Sons, Inc., 1974.
- [JaH94] L. M. A. Jalloul and J. M. Holtzman, “Multipath fading effects on wide-band DS/CDMA signals: analysis, simulation, and measurements,” *IEEE Trans. Vehicular Tech.*, vol. 43, pp. 801–807, Aug. 1994.
- [JaM94] A. Jalali and P. Mermelstein, “Effects of diversity, power control, and bandwidth on the capacity of microcellular CDMA systems,” *IEEE J. Sel. Areas Commun.*, vol. 12, pp. 952–961, June. 1994.

- [Kal85] N. Kalouptsides, G. Carayannis, D. Manolakis, and E. Koukoutsis, “Efficient recursive in order least squares FIR filtering and prediction,” *IEEE Trans. Acoustics, Speech, and Signal Processing*, vol. 33, pp. 1175–1187, Oct. 1985.
- [Kec94] G. Kechriotis, E. Zervas, and E. S. Manolakos, “Using recurrent neural networks for adaptive communication channel equalization,” *IEEE Trans. Neural Networks*, vol. 5, pp. 267–278, Mar. 1994.
- [Kim93] K. I. Kim, “CDMA cellular engineering issues,” *IEEE Trans. Vehicular Tech.*, vol. 42, pp. 345–350, Aug. 1993.
- [Kim97] J. Y. Kim and J. H. Lee, “Effect of imperfect power control on acquisition performance in a DS/CDMA system,” *Electronics Letters*, vol. 32, pp. 1255–1256, July 1996.
- [Kud92] E. Kudoh and T. Matsumoto, “Effects of power control error on the system user capacity of DS/CDMA cellular mobile radios,” *IEICE Trans. Commun.*, vol. E75-B, pp. 524–529, June 1992.
- [Kud93] E. Kudoh, “On the capacity of DS/CDMA cellular mobile radios under imperfect transmitter power control,” *IEICE Trans. Commun.*, vol. E76-B, pp. 886–893, Aug. 1993.
- [Laa93] T. I. Laakso and S. Ovaska, “Optimal polynomial predictors with application specific fixed prefilters,” in *Proc. IEEE Int. Symp. Circuits and Systems*, Chicago, IL, May 1993, pp. 351–354.
- [Lee86] W. C. Y. Lee, *Mobile Communications Design Fundamentals*. Indianapolis, IN, USA: Sams, 1986.
- [Lee91] W. C. Y. Lee, “Overview of Cellular CDMA,” *IEEE Trans. Vehicular Tech.*, vol. 40, pp. 291–302, May 1991.
- [Lee95] T.-H. Lee, J.-C. Lin, and Y. T. Su, “Downlink power control algorithms for cellular radio systems,” *IEEE Trans. Vehicular Tech.*, vol. 44, pp. 89–94, Feb. 1995.
- [Lee97] J. Lee, R. Tafazolli, and B. G. Evans, “Erlang capacity of OC-CDMA with imperfect power control,” *Electronics Letters*, vol. 33, pp. 295–261, Feb. 1997.
- [Li95] V. O. K. Li and X. Qui, “Personal communication systems (PCS),” *Proc. of IEEE*, vol. 83, pp. 1210–1243, Sept. 1995.
- [Lin92] J.-P. M. G. Linnartz, R. Hekmat, and R.-J. Venema, “Near-far effects in land mobile random access networks with narrow-band Rayleigh fading channels,” *IEEE Trans. Vehicular Tech.*, vol. 41, pp. 77–90, Feb. 1992.
- [Lin97] X. D. Lin and K. H. Chang, “Optimal PC sequence design for quasisynchronous CDMA communication systems,” *IEEE Trans. Commun.*, vol. 45, pp. 221–226, Feb. 1997.
- [Loo91] C. Loo and N. Secord, “Computer models for fading channels with applications to digital transmission,” *IEEE Trans. Vehicular Tech.*, vol. 40, pp. 700–707, Nov. 1991.
- [Mag94] D. T. Magill, F. D. Natali, and G. P. Edwards, “Spread-spectrum technology for commercial applications,” *Proc. IEEE*, vol. 82, pp. 572–584, Apr. 1994.

- 
- [Mil92] L. B. Milstein, T. S. Rappaport, and R. Barghouti, “Performance evaluation for cellular CDMA,” *IEEE J. Selected Areas Commun.*, vol. 10, pp. 680–689, May 1992.
- [Miy93] T. Miyajima, T. Hasegawa, and M. Haneishi, “On the multiuser detection using a neural network in code-division multiple-access communications,” *IEICE Trans. Commun.*, vol. E76-B, pp. 961–968, Aug. 1993.
- [Nee90] J. Neejärvi and Y. Neuvo, “Sinusoidal and pulse responses of FIR-median hybrid filters,” *IEEE Trans. Circuits and Systems*, vol. 37, pp. 1552–1556, Dec. 1990.
- [Orf90] S. J. Orfanidis, *Optimum Signal Processing: An Introduction* (2nd ed.). New York, NY, USA: McGraw-Hill Book Company, 1990.
- [Ova91a] S. J. Ovaska, “FIR prediction using Newton’s backward interpolation algorithm with soothed successive differences,” *IEEE Trans. Instrumentation and Measurement*, vol. 40, pp. 811–815, Oct. 1991.
- [Ova91b] S. J. Ovaska, “Newton-type predictors – A signal processing oriented viewpoint,” *Signal Processing*, vol. 25, pp. 251–257, Nov. 1991.
- [Ova92] S. J. Ovaska and O. Vainio, “Recursive linear smoothed Newton predictors for polynomial extrapolation,” *IEEE Trans. Instrumentation and Measurement*, vol. 41, pp. 510–516, Aug. 1992.
- [Par87] W. Parks and C. S. Burrus, *Digital Filter Design*. New York, NY, USA: John Wiley Sons, Inc., 1987.
- [Par92] D. Parsons, *The Mobile Radio Propagation Channel*. London, England: Pentech Press limited, 1992.
- [Pic82] B. Picinbono, “Quadratic filters,” in *Proc. Int. Conf. Acoustics, Speech, and Signal Processing*, Paris, France, May 1982, pp. 298–301.
- [Pic91] R. L. Pickholtz, L. B. Milstein, and D. L. Schilling, “Spread Spectrum for Mobile Communications,” *IEEE Trans. Vehicular Tech.*, vol. 40, pp. 313–322, May 1991.
- [Pov96] G. J. R. Povey, P. M. Grant, and R. D. Pringle, “A decision-directed spread-spectrum RAKE receiver for fast-fading mobile channels,” *IEEE Trans. Vehicular Tech.*, vol. 45, pp. 491–502, Aug. 1996.
- [Pra92] R. Prasad, A. Kegel, and M. G. Jansen, “Effect of imperfect power control on cellular code division multiple access system,” *Electronics Letters*, vol. 28, pp. 849–848, Apr. 1992.
- [Pri58] R. Price and P. E. Green, “A communication technique for multipath channels,” *Proc. of IRE*, pp. 555–570, Mar. 1958.
- [Pri96] F. D. Priscoli and F. Sestini, “Effects of imperfect power control and user mobility on a CDMA cellular network,” *IEEE J. Sel. Areas Commun.*, vol. 14, pp. 1809–1817, Dec. 1996.
- [Pro92] J. G. Proakis and D. G. Manolakis, *Digital Signal Processing: Principles, Algorithms, and Applications*. New York, NY, USA: Macmillan Publishing Company, 1992.
- [Qua92] QUALCOMM Incorporation, *An Overview of the Application of Code Division Multiple Access (CDMA) to Digital Cellular Systems and Personal Cellular Networks*. (Document no. EX60-10010), 1992.

- [Ran92] J. P. Ranta, S. J. Ovaska, and T. I. Laakso, “Adaptive polynomial predictor for feedback velocity prefiltering in elevator control,” in *Proc. Int. Conf. Signal Processing Applications and Technology*, Cambridge, MA, Nov. 1992, pp. 583–592.
- [Ris84] J. Rissanen, “Universal coding, information, prediction, and estimation using predictive MDL principle,” *IEEE Trans. Information Theory*, vol. 30, pp. 629–636, July 1984.
- [Sch90] D. L. Schilling, R. L. Pickholtz, and L. B. Milstein, “Spread spectrum goes commercial,” *IEEE Spectrum*, pp. 40–45, Aug. 1990.
- [Sha97] M. Shafi, A. Hashimoto, M. Umehira, S. Ogose, and T. Murase, “Wireless communications in the twenty-first century: a perspective,” *Proc. of IEEE*, vol. 85, pp. 1622–1638, Oct. 1997.
- [Sic92] G. Sicuranza, “Quadratic filters for signal processing,” *Proc. of IEEE*, vol. 80, pp. 1263–1285, Aug. 1992.
- [Sim85] M. K. Simon, J. K. Omura, R. A. Scholtz, and B. K. Levitt, *Spread Spectrum Communications, Vol. 1, Vol. 2*. Rockville, MD, USA: Computer Science Press, 1985.
- [Sim93] F. Simpsom and J. M. Holtzman, “Direct sequence CDMA power control, interleaving, and coding,” *IEEE J. Sel. Areas Commun.*, vol. 11, pp. 1085–1095, Sept. 1993.
- [Str96] E. G. Ström, S. Parkvall, S. L. Miller, and B. E. Ottersten, “Propagation delay estimation in asynchronous direct-sequence code-division multiple access systems,” *IEEE Trans. Commun.*, vol. 44, pp. 84–93, Jan. 1996.
- [Sut88] R. S. Sutton, “Learning to predict by the methods of temporal differences,” *Machine Learning*, vol. 3, pp. 9–44, 1988.
- [The92] C. W. Therrien, *Discrete Random Signals and Statistical Signal Processing*. London, UK: Prentice-Hall International, Inc., 1992.
- [Ton94] O. K. Tonguz and M. M. Wang, “Cellular CDMA networks impaired by Rayleigh fading: System performance with power control,” *IEEE Trans. Vehicular Tech.*, vol. 43, pp. 515–527, Aug. 1994.
- [Vaj95] I. Vajda, “Code sequences for frequency-hopping multiple-access systems,” *IEEE Trans. Commun.*, vol. 43, pp. 2553–2554, Oct. 1995.
- [Val97] R. A. Valenzuela, O. Landron, and D. L. Jacobs, “Estimating local mean signal strength of indoor multipath propagation,” *IEEE Trans. Vehicular Tech.*, vol. 46, pp. 203–212, Feb. 1997.
- [Wan93] M. M. Wang and O. K. Tonguz, “Forward link power control for cellular CDMA networks,” *Electronics Letters*, vol. 29, pp. 1195–1197, June 1993.
- [Var97] B. Varone, J. M. A. Tanskanen, and S. J. Ovaska, “Response analysis of a feed-forward neural network,” in *Proc. 1997 International Conference on Acoustics, Speech, and Signal Processing*, Munich, Germany, Apr. 1997, pp. 3309–3312.
- [Vit93a] A. J. Viterbi, A. M. Viterbi, and E. Zehavi, “Performance of power-controlled wideband terrestrial digital communication,” *IEEE Trans. Commun.*, vol. 41, pp. 559–569, Apr. 1993.

- 
- [Vit93b] A. M. Viterbi and A. J. Viterbi, “Erlang capacity of a power controlled CDMA system,” *IEEE J. Selected Areas Commun.*, vol. 11, pp. 892–900, Aug. 1993.
  - [Vit94a] A. J. Viterbi, A. M. Viterbi, and E. Zehavi, “Other-cell interference in cellular power-controlled CDMA,” *IEEE Trans. Commun.*, vol. 42, pp. 1501–1504, Feb./Mar./Apr. 1994.
  - [Vit94b] A. J. Viterbi, “The evolution of digital wireless technology from space exploration to personal communication services,” *IEEE Trans. Vehicular Tech.*, vol. 43, pp. 638–644, Aug. 1994.
  - [Vit95] A. J. Viterbi, *CDMA Principles of Spread Spectrum Communication*. Reading, MA, USA: Addison-Wesley Publishing Company, 1995.
  - [Zan92] J. Zander, “Performance of optimum transfer power control in cellular radio systems,” *IEEE Trans. Vehicular Tech.*, vol. 41, pp. 57–62, Feb. 1992.
  - [Åst87] K. J. Åström, “Adaptive feedback control,” *Proc. of IEEE*, vol. 75, pp. 185–217, Feb. 1987.