Machine learning for radio galaxy morphology analysis

Mostert, R.I.J.

Bibliography

Adelman-McCarthy, J. K. & et al. 2009, VizieR Online Data Catalog, II/294

Ahn, C. P., Alexandroff, R., Allende Prieto, C., et al. 2012a, ApJS, 203, 21

Ahn, C. P., Alexandroff, R., Allende Prieto, C., et al. 2012b, ApJS, 203, 21

Alabdulmohsin, I. M., Neyshabur, B., & Zhai, X. 2022, Advances in Neural Information Processing Systems, 35, 22300

Alam, S., Albareti, F. D., Allende Prieto, C., et al. 2015, ApJS, 219, 12

Alegre, L., Sabater, J., Best, P., et al. 2022, MNRAS, 516, 4716

Alexander, P. & Leahy, J. P. 1987, MNRAS, 225, 1

Alhassan, W., Taylor, A. R., & Vaccari, M. 2018, MNRAS, 480, 2085

Andernach, H., Jiménez-Andrade, E. F., & Willis, A. G. 2021, Galaxies, 9, 99

Aniyan, A. K. & Thorat, K. 2017, ApJS, 230, 20

Azizi, S., Mustafa, B., Ryan, F., et al. 2021, arXiv e-prints, arXiv:2101.05224

Banfield, J. K., Wong, O. I., Willett, K. W., et al. 2015, MNRAS, 453, 2326

Barkus, B., Croston, J. H., Piotrowska, J., et al. 2022, MNRAS, 509, 1

Baron, D. & Poznanski, D. 2017, MNRAS, 465, 4530

Bassani, L., Ursini, F., Malizia, A., et al. 2021, MNRAS, 500, 3111

Baumann, M., Boch, T., Pineau, F.-X., et al. 2022, in Astronomical Society of the Pacific Conference Series, Vol. 532, Astronomical Society of the Pacific Conference Series, ed. J. E. Ruiz, F. Pierfedereci, & P. Teuben, 7

Becker, R. H., White, R. L., & Helfand, D. J. 1995, ApJ, 450, 559

Belkin, M., Hsu, D., Ma, S., & Mandal, S. 2019, Proceedings of the National Academy of Sciences, 116, 15849

Best, P. 2009, Astronomische Nachrichten: Astronomical Notes, 330, 184

Bicknell, G. V. 1995, ApJS, 101, 29

Boch, T. & Fernique, P. 2014, in Astronomical Society of the Pacific Conference Series, Vol. 485, Astronomical Data Analysis Software and Systems XXIII, ed. N. Manset & P. Forshay, 277

Bommasani, R., Hudson, D. A., Adeli, E., et al. 2021, arXiv preprint arXiv:2108.07258

Bonaldi, A., An, T., Brüggen, M., et al. 2021, MNRAS, 500, 3821

Bonaldi, A. & Braun, R. 2018, arXiv e-prints, arXiv:1811.10454

Bonnarel, F., Fernique, P., Bienaymé, O., et al. 2000, A&AS, 143, 33

Boureau, Y.-L., Ponce, J., & LeCun, Y. 2010, in Proceedings of the 27th international conference on machine learning (ICML-10), 111–118

Bowles, M., Scaife, A. M. M., Porter, F., Tang, H., & Bastien, D. J. 2021, MNRAS, 501, 4579

Bowles, M., Tang, H., Vardoulaki, E., et al. 2023, Monthly Notices of the Royal Astronomical Society, 522, 2584

Braun, R., Bourke, T., Green, J. A., Keane, E., & Wagg, J. 2015, in Advancing Astrophysics with the Square Kilometre Array (AASKA14), 174

Breiman, L. 1997, Arcing the edge, Tech. rep., Citeseer

Breiman, L. 2001, Machine Learning, 45, 5

Brienza, M., Godfrey, L., Morganti, R., et al. 2017, A&A, 606, A98

Brienza, M., Morganti, R., Murgia, M., et al. 2018, A&A, 618, A45

Brown, T. M. 2001, The Astrophysical Journal, 553, 1006

Campbell, M., Hoane Jr, A. J., & Hsu, F.-h. 2002, Artificial intelligence, 134, 57

Campello, R. J., Moulavi, D., Zimek, A., & Sander, J. 2015, ACM Transactions on Knowledge Discovery from Data (TKDD), 10, 1

Carretti, E., O'Sullivan, S. P., Vacca, V., et al. 2023, MNRAS, 518, 2273

Chambers, K. C., Magnier, E., Metcalfe, N., et al. 2016a, arXiv preprint arXiv:1612.05560

Chambers, K. C., Magnier, E., Metcalfe, N., et al. 2016b, arXiv preprint arXiv:1612.05560

Chapelle, O., Scholkopf, B., & Zien, A. 2009, IEEE Transactions on Neural Networks, 20, 542

Charbonneau, D., Brown, T. M., Latham, D. W., & Mayor, M. 2000, ApJ, 529, L45

Chen, H., Lundberg, S. M., & Lee, S.-I. 2022, Nature communications, 13, 4512

Chen, T., Kornblith, S., Norouzi, M., & Hinton, G. 2020, arXiv e-prints, arXiv:2002.05709

Cielo, S., Bieri, R., Volonteri, M., Wagner, A. Y., & Dubois, Y. 2018, Monthly Notices of the Royal Astronomical Society, 477, 1336

Coelho, L. P. 2013, Journal of Open Research Software

Condon, J. J. 1992, ARA&A, 30, 575

Condon, J. J., Cotton, W. D., Greisen, E. W., et al. 1998, AJ, 115, 1693

Condon, J. J. & Ransom, S. M. 2016, Essential Radio Astronomy (Princeton University Press)

Connor, L., Bouman, K. L., Ravi, V., & Hallinan, G. 2022, MNRAS, 514, 2614

Conselice, C. J. 2014, ARA&A, 52, 291

Cordey, R. A. 1987, MNRAS, 227, 695

Cordts, M., Omran, M., Ramos, S., et al. 2016, arXiv e-prints, arXiv:1604.01685

Couto, G. S. & Storchi-Bergmann, T. 2023, Galaxies, 11, 47

Csáji, B. C. et al. 2001, Faculty of Sciences, Etvs Lornd University, Hungary, 24, 7

Curtis, H. D. 1988, Publications of the Astronomical Society of the Pacific, 100, 6

Cutri, R. M., Wright, E. L., Conrow, T., et al. 2021, VizieR Online Data Catalog, II/328

Dabhade, P., Mahato, M., Bagchi, J., et al. 2020a, A&A, 642, A153

Dabhade, P., Röttgering, H. J. A., Bagchi, J., et al. 2020b, A&A, 635, A5

Dagli, R. 2023, arXiv preprint arXiv:2304.05350

D'Agostino, S. 2000, Hertz's Experiments on Electromagnetic Waves (Dordrecht: Springer Netherlands), 135–166

Dai, J.-M. & Tong, J. 2018, Visualizing the Hidden Features of Galaxy Morphology with Machine Learning

de Gasperin, F., Edler, H. W., Williams, W. L., et al. 2023, A&A, 673, A165

de Gasperin, F., Williams, W. L., Best, P., et al. 2021, A&A, 648, A104

de Jong, J. M. G. H. J., van Weeren, R. J., Botteon, A., et al. 2022, A&A, 668, A107

de Ruiter, H. R., Willis, A. G., & Arp, H. C. 1977, A&AS, 28, 211

Deeg, H. J. & Alonso, R. 2018, in Handbook of Exoplanets, ed. H. J. Deeg & J. A. Belmonte, 117

Delhaize, J., Heywood, I., Prescott, M., et al. 2021, MNRAS, 501, 3833

Deng, J., Dong, W., Socher, R., et al. 2009, in CVPR09

Dewdney, P. E., Hall, P. J., Schilizzi, R. T., & Lazio, T. J. L. W. 2009, IEEE Proceedings, 97, 1482

Dey, A., Schlegel, D. J., Lang, D., et al. 2019a, AJ, 157, 168

Dey, A., Schlegel, D. J., Lang, D., et al. 2019b, AJ, 157, 168

Dieleman, S., Willett, K. W., & Dambre, J. 2015, MNRAS, 450, 1441

Dollár, P., Appel, R., Belongie, S., & Perona, P. 2014, IEEE transactions on pattern analysis and machine intelligence, 36, 1532

Dosovitskiy, A., Beyer, L., Kolesnikov, A., et al. 2020, arXiv e-prints, arXiv:2010.11929

Dumoulin, V. & Visin, F. 2016, arXiv preprint arXiv:1603.07285

Duncan, K. J. 2022, MNRAS, 512, 3662

Dyson, F. W., Eddington, A. S., & Davidson, C. 1920, Philosophical Transactions of the Royal Society of London. Series A, Containing Papers of a Mathematical or Physical Character, 220, 291

Edler, H. W., de Gasperin, F., & Rafferty, D. 2021, A&A, 652, A37

Elsmore, B. & Whitfield, G. 1955, Nature, 176, 457

Emig, K. L. 2021, PhD thesis, Leiden Observatory

Esteva, A., Chou, K., Yeung, S., et al. 2021, NPJ digital medicine, 4, 5

Evans, D., Edwards, D., Frueh, M., McWilliam, A., & Sandmann, W. 1985, The Astronomical Journal, 90, 2360

Everingham, M., Zisserman, A., Williams, C. K., et al. 2006, in Machine Learning Challenges. Evaluating Predictive Uncertainty, Visual Object Classification, and Recognising Tectual Entailment: First PASCAL Machine Learning Challenges Workshop, MLCW 2005, Southampton, UK, April 11-13, 2005, Revised Selected Papers, Springer, 117–176

Fan, D., Budavári, T., Norris, R. P., & Hopkins, A. M. 2015, MNRAS, 451, 1299

Fanaroff, B. L. & Riley, J. M. 1974, MNRAS, 167, 31P

Fernandes, A. F. A., Dórea, J. R. R., & Rosa, G. J. d. M. 2020, Frontiers in Veterinary Science, 7, 551269

Folleco, A., Khoshgoftaar, T. M., Van Hulse, J., & Bullard, L. 2008, in 2008 IEEE congress on evolutionary computation (IEEE world congress on computational intelligence), IEEE, 3853–3859

Forero-Romero, J. E., Hoffman, Y., Gottlöber, S., Klypin, A., & Yepes, G. 2009, MNRAS, 396, 1815

Frénay, B. & Verleysen, M. 2013, IEEE transactions on neural networks and learning systems, 25, 845

Friedman, J. H. 2001, Annals of statistics, 1189

Furlanetto, S. R. & Loeb, A. 2001, ApJ, 556, 619

Gal, Y. & Ghahramani, Z. 2016, in international conference on machine learning, PMLR, 1050–1059

Galvin, T. J., Huynh, M., Norris, R. P., et al. 2019, PASP, 131, 108009

Galvin, T. J., Huynh, M. T., Norris, R. P., et al. 2020, MNRAS, 497, 2730

Garrington, S. T., Leahy, J. P., Conway, R. G., & Laing, R. A. 1988, Nature, 331, 147

Gheller, C. & Vazza, F. 2019, MNRAS, 486, 981

Gheller, C., Vazza, F., & Bonafede, A. 2018, MNRAS, 480, 3749

Girshick, R. 2015, in Proceedings of the IEEE international conference on computer vision, 1440–1448

Girshick, R., Donahue, J., Darrell, T., & Malik, J. 2014, in Proceedings of the IEEE conference on computer vision and pattern recognition, 580–587

Godfrey, L. E. H., Morganti, R., & Brienza, M. 2017, MNRAS, 471, 891

Goodfellow, I., Bengio, Y., & Courville, A. 2016, Deep Learning (MIT Press), http://www.deeplearningbook.org

Goodfellow, I., Pouget-Abadie, J., Mirza, M., et al. 2020, Communications of the ACM, 63, 139

Govoni, F., Orrù, E., Bonafede, A., et al. 2019, Science, 364, 981

Green, D. A. & Riley, J. M. 1995, MNRAS, 274, 324

Grinsztajn, L., Oyallon, E., & Varoquaux, G. 2022, in Thirty-sixth Conference on Neural Information Processing Systems Datasets and Benchmarks Track

Grobler, T. L., Nunhokee, C. D., Smirnov, O. M., van Zyl, A. J., & de Bruyn, A. G. 2014, MNRAS, 439, 4030

Groeneveld, C., van Weeren, R. J., Miley, G. K., et al. 2022, A&A, 658, A9

Gürkan, G., Hardcastle, M. J., Smith, D. J. B., et al. 2018, MNRAS, 475, 3010

Gürkan, G., Prandoni, I., O'Brien, A., et al. 2022, MNRAS, 512, 6104

Hale, C. L., Robotham, A. S. G., Davies, L. J. M., et al. 2019, MNRAS, 487, 3971

Hales, S. E. G., Riley, J. M., Waldram, E. M., Warner, P. J., & Baldwin, J. E. 2007, MNRAS, 382, 1639

Halevy, A., Norvig, P., & Pereira, F. 2009, IEEE intelligent systems, 24, 8

Hallinan, G., Ravi, V., & Walter, F. 2022, in American Astronomical Society Meeting Abstracts, Vol. 54, American Astronomical Society Meeting #240, 409.06

Hallinan, G., Ravi, V., Weinreb, S., et al. 2019, in Bulletin of the American Astronomical Society, Vol. 51, 255

Hancock, P. J., Murphy, T., Gaensler, B. M., Hopkins, A., & Curran, J. R. 2012, MNRAS, 422, 1812

Hancock, P. J., Trott, C. M., & Hurley-Walker, N. 2018, PASA, 35, e011

Hanson, S. & Pratt, L. 1988, Advances in neural information processing systems, 1

Haralick, R. M., Shanmugam, K., & Dinstein, I. H. 1973, IEEE Transactions on systems, man, and cybernetics, 610

Hardcastle, M. & Croston, J. 2020, New Astronomy Reviews, 88, 101539

Hardcastle, M. J. 2018, MNRAS, 475, 2768

Hardcastle, M. J., Croston, J. H., Shimwell, T. W., et al. 2019, MNRAS, 488, 3416

Hardcastle, M. J., Horton, M. A., Williams, W. L., et al. 2023, A&A, 678, A151

Hartley, P., Bonaldi, A., Braun, R., et al. 2023, MNRAS

Harwood, J. J., Hardcastle, M. J., Croston, J. H., & Goodger, J. L. 2013, MNRAS, 435, 3353

Harwood, J. J., Hardcastle, M. J., Croston, J. H., & Goodger, J. L. 2018, BRATS: Broadband Radio Astronomy ToolS, Astrophysics Source Code Library, record ascl:1806.025

He, K., Gkioxari, G., Dollár, P., & Girshick, R. 2017, in Proceedings of the IEEE international conference on computer vision, 2961–2969

He, K., Zhang, X., Ren, S., & Sun, J. 2015, in Proceedings of the IEEE international conference on computer vision, 1026–1034

He, K., Zhang, X., Ren, S., & Sun, J. 2016, in Proceedings of the IEEE conference on computer vision and pattern recognition, 770–778

Heywood, I., Jarvis, M. J., Hale, C. L., et al. 2022, MNRAS, 509, 2150

Hinton, G. E., Srivastava, N., Krizhevsky, A., Sutskever, I., & Salakhutdinov, R. R. 2012, arXiv preprint arXiv:1207.0580

Hochreiter, S. & Schmidhuber, J. 1997, Neural computation, 9, 1735

Hornik, K., Stinchcombe, M., & White, H. 1989, Neural networks, 2, 359

Hossain, M. S., Roy, S., Asad, K. M. B., et al. 2023, Morphological Classification of Radio Galaxies using Semi-Supervised Group Equivariant CNNs

Houlsby, N., Huszár, F., Ghahramani, Z., & Lengyel, M. 2011, arXiv e-prints, arXiv:1112.5745

Hubble, E. P. 1929, ApJ, 69, 103

Ignesti, A., Gitti, M., Brunetti, G., Feretti, L., & Giovannini, G. 2017, A&A, 604, A21

Ignesti, A., Gitti, M., Brunetti, G., et al. 2018, A&A, 610, A89

Ishibashi, W. & Fabian, A. C. 2012, MNRAS, 427, 2998

Ishwara-Chandra, C. H., Taylor, A. R., Green, D. A., et al. 2020, MNRAS, 497, 5383

Ivezić, Ž., Connelly, A. J., Vanderplas, J. T., & Gray, A. 2019, Statistics, Data Mining, and Machine Learning in Astronomy

Jansky, K. G. 1933, 132, 66

Jarrett, T. H., Chester, T., Cutri, R., et al. 2000, AJ, 119, 2498

Jarvis, M., Taylor, R., Agudo, I., et al. 2016, in MeerKAT Science: On the Pathway to the SKA, 6

Johnston, S., Taylor, R., Bailes, M., et al. 2008, Experimental Astronomy, 22, 151

Jonas, J. & MeerKAT Team. 2016, in MeerKAT Science: On the Pathway to the SKA, 1

Jumper, J., Evans, R., Pritzel, A., et al. 2021, Nature, 596, 583

Jurlin, N. 2022, PhD thesis, University of Groningen

Jurlin, N., Morganti, R., Brienza, M., et al. 2020, A&A, 638, A34

Kadam, S. K., Sonkamble, S. S., Pawar, P. K., & Patil, M. K. 2019, MNRAS, 484, 4113

Kaiser, N., Burgett, W., Chambers, K., et al. 2010, in Ground-based and Airborne Telescopes III, ed. L. M. Stepp, R. Gilmozzi, & H. J. Hall, Vol. 7733, International Society for Optics and Photonics (SPIE), 159 – 172

Kapoor, S. & Narayanan, A. 2022, arXiv e-prints, arXiv:2207.07048

Karpathy, A. 2015a, CS231n Convolutional Neural Networks for Visual Recognition, MIT course syllabus: https://cs231n.github.io/optimization-2/

Karpathy, A. 2015b, CS231n Convolutional Neural Networks for Visual Recognition, MIT course syllabus: https://cs231n.github.io/neural-networks-3/

Kempner, J. C., Blanton, E. L., Clarke, T. E., et al. 2004, in The Riddle of Cooling Flows in Galaxies and Clusters of galaxies, ed. T. Reiprich, J. Kempner, & N. Soker, 335

Killestein, T., Lyman, J., Steeghs, D., et al. 2021, Monthly Notices of the Royal Astronomical Society, 503, 4838

King, H. C. 2003, The history of the telescope (Courier Corporation)

Kingma, D. P. & Ba, J. 2014, arXiv preprint arXiv:1412.6980

Kingma, D. P. & Welling, M. 2013, arXiv preprint arXiv:1312.6114

Kirchhoff, G. 1860, Annalen der Physik, 185, 275

Kohonen, T. 1989, Self-Organization and Associative Memory (Springer Berlin Heidelberg)

Kohonen, T. 2001, Self-organizing maps (Berlin New York: Springer)

Kondapally, R., Best, P. N., Hardcastle, M. J., et al. 2021, A&A, 648, A3

Krause, M. G. H., Shabala, S. S., Hardcastle, M. J., et al. 2018, MNRAS, 482, 240

Krizhevsky, A., Sutskever, I., & Hinton, G. E. 2012, in Advances in Neural Information Processing Systems, ed. F. Pereira, C. Burges, L. Bottou, & K. Weinberger, Vol. 25 (Curran Associates, Inc.)

Kronberg, P. P., Lesch, H., & Hopp, U. 1999, ApJ, 511, 56

Krüger, P., Monari, J., Perini, F., Schoonderbeek, G., & Damstra, S. 2022, in 2022 3rd URSI Atlantic and Asia Pacific Radio Science Meeting (AT-AP-RASC), 1–4

Kulsrud, R. M., Cen, R., Ostriker, J. P., & Ryu, D. 1997, ApJ, 480, 481

Lacy, M., Baum, S. A., Chandler, C. J., et al. 2020, PASP, 132, 035001

Lavaux, G. & Hudson, M. J. 2011, MNRAS, 416, 2840

LeCun, Y., Boser, B., Denker, J. S., et al. 1989, Neural computation, 1, 541

Li, F., Zhang, H., Liu, S., et al. 2022, arXiv preprint arXiv:2206.02777

Lin, T.-Y., Dollár, P., Girshick, R., et al. 2017, in Proceedings of the IEEE conference on computer vision and pattern recognition, 2117–2125

Lin, T.-Y., Maire, M., Belongie, S., et al. 2014, arXiv e-prints, arXiv:1405.0312

Link, F. 1956, Bulletin of the Astronomical Institutes of Czechoslovakia, 7, 1

Liu, L., Ouyang, W., Wang, X., et al. 2020, International journal of computer vision, 128, 261

Liu, Z., Lin, Y., Cao, Y., et al. 2021, in Proceedings of the IEEE/CVF International Conference on Computer Vision, 10012–10022

Liu, Z., Mao, H., Wu, C.-Y., et al. 2022, in Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 11976–11986

Lochner, M. & Bassett, B. A. 2021, Astronomy and Computing, 36, 100481

Lonsdale, C. J., Smith, H. E., Rowan-Robinson, M., et al. 2003, Publications of the Astronomical Society of the Pacific, 115, 897

Loshchilov, I. & Hutter, F. 2017, arXiv preprint arXiv:1711.05101

Louppe, G. 2014, PhD thesis, University of Liege, Belgium, arXiv:1407.7502

Lukic, V., Brüggen, M., Banfield, J. K., et al. 2018, MNRAS, 476, 246

Lukic, V., Brüggen, M., Mingo, B., et al. 2019, MNRAS, 487, 1729

Ma, Z., Xu, H., Zhu, J., et al. 2019, ApJS, 240, 34

Mackay, C. D. 1971, MNRAS, 154, 209

Mahatma, V. H., Hardcastle, M. J., Williams, W. L., et al. 2019, A&A, 622, A13

Mahatma, V. H., Hardcastle, M. J., Williams, W. L., et al. 2018, MNRAS, 475, 4557

Mahato, M., Dabhade, P., Saikia, D. J., et al. 2022, A&A, 660, A59

Mahony, E., Morganti, R., Prandoni, I., et al. 2016, Monthly Notices of the Royal Astronomical Society, 463, 2997

Mandal, S., Intema, H. T., van Weeren, R. J., et al. 2020, A&A, 634, A4

Mannering, E. J. A., Worrall, D. M., & Birkinshaw, M. 2011, MNRAS, 416, 2869

Marshall, P. J., Verma, A., More, A., et al. 2016, MNRAS, 455, 1171

Martí-Vidal, I. & Marcaide, J. M. 2008, A&A, 480, 289

Masini, A., Celotti, A., Grandi, P., Moravec, E., & Williams, W. L. 2021, A&A, 650, A51

Maslowski, J., Pauliny-Toth, I. I. K., Witzel, A., & Kuehr, H. 1984, A&A, 141, 376

Matthews, T. A. & Sandage, A. R. 1963, ApJ, 138, 30

Maxwell, J. C. 1865, Philosophical transactions of the Royal Society of London, 459

McCready, L., Pawsey, J. L., & Payne-Scott, R. 1947, Proceedings of the Royal Society of London. Series A. Mathematical and Physical Sciences, 190, 357

McCulloch, W. S. & Pitts, W. 1943, The bulletin of mathematical biophysics, 5, 115

McInnes, L., Healy, J., & Astels, S. 2017, The Journal of Open Source Software, 2

Meisner, A. M., Lang, D., & Schlegel, D. J. 2018, Research Notes of the American Astronomical Society, 2, 1

Messier, C. 1781, Catalogue des Nébuleuses et des Amas d'Étoiles (Catalog of Nebulae and Star Clusters), Connoissance des Temps ou des Mouvements Célestes

Miley, G. 1980, Annual Review of Astronomy and Astrophysics, 18, 165

Miley, G. 1980, ARA&A, 18, 165

Miley, G. K., Perola, G. C., van der Kruit, P. C., & van der Laan, H. 1972, Nature, 237, 269

Mingo, B., Croston, J. H., Hardcastle, M. J., et al. 2019, MNRAS, 488, 2701

Mishkin, D. & Matas, J. 2015, arXiv preprint arXiv:1511.06422

Mohan, D., Scaife, A. M. M., Porter, F., Walmsley, M., & Bowles, M. 2022, MNRAS, 511, 3722

Mohan, N. & Rafferty, D. 2015, PyBDSF: Python Blob Detection and Source Finder, Astrophysics Source Code Library

Morabito, L., Jackson, N., Mooney, S., et al. 2022, A&A, 658, A1

Morganti, R. 2017, Nature Astronomy, 1, 596

Morganti, R., Oosterloo, T. A., Brienza, M., et al. 2021, A&A, 648, A9

Mostert, R. I. J., Duncan, K. J., Alegre, L., et al. 2022, A&A, 668, A28

Mostert, R. I. J., Duncan, K. J., Röttgering, H. J. A., et al. 2021, A&A, 645, A89

Mostert, R. I. J., Morganti, R., Brienza, M., et al. 2023, A&A, 674, A208

Murgia, M., Parma, P., Mack, K. H., et al. 2011, A&A, 526, A148

Murphy, K. P. 2012, Machine learning: a probabilistic perspective (MIT press)

Murthy, S. K., Kasif, S., Salzberg, S., & Beigel, R. 1993, in Proceedings of AAAI, Vol. 93, Citeseer, 322–327

Nair, V. & Hinton, G. E. 2010, in Proceedings of the 27th international conference on machine learning (ICML-10), 807–814

Nakkiran, P., Kaplun, G., Bansal, Y., et al. 2021, Journal of Statistical Mechanics: Theory and Experiment, 2021, 124003

Nan, R., Li, D., Jin, C., et al. 2011, International Journal of Modern Physics D, 20, 989

Narayan, R. & Yi, I. 1994, arXiv preprint astro-ph/9403052

Netzer, H. 2013, The Physics and Evolution of Active Galactic Nuclei

Norris, R. P., Afonso, J., Appleton, P. N., et al. 2006, The Astronomical Journal, 132, 2409

Norris, R. P., Hopkins, A. M., Afonso, J., et al. 2011, PASA, 28, 215

North, J. 2008, Cosmos: an illustrated history of astronomy and cosmology (University of Chicago Press)

Northcutt, C. G., Athalye, A., & Mueller, J. 2021, arXiv preprint arXiv:2103.14749

Ntwaetsile, K. & Geach, J. E. 2021, MNRAS, 502, 3417

Ochsenbein, F., Bauer, P., & Marcout, J. 2000, A&AS, 143, 23

O'Dea, C. P. & Owen, F. N. 1986, ApJ, 301, 841

Oei, M. S. S. L., van Weeren, R. J., Gast, A. R. D. J. G. I. B., et al. 2023a, A&A, 672, A163

Oei, M. S. S. L., van Weeren, R. J., Hardcastle, M. J., et al. 2022, A&A, 660, A2

Oei, M. S. S. L., van Weeren, R. J., Hardcastle, M. J., et al. 2023b, MNRAS, 518, 240

Oosterloo, T., Morganti, R., & Murthy, S. 2023, Nature Astronomy

Opik, E. 1922, ApJ, 55, 406

Owen, F. N. & Rudnick, L. 1976, ApJ, 205, L1

Pâris, I., Petitjean, P., Ross, N. P., et al. 2017, A&A, 597, A79

Parma, P., Murgia, M., de Ruiter, H. R., et al. 2007, A&A, 470, 875

Paturel, G., Petit, C., Prugniel, P., et al. 2003, A&A, 412, 45

Pauliny-Toth, I. & Kellermann, K. 1966, Astrophysical Journal, vol. 146, p. 634, 146, 634

Pedregosa, F., Varoquaux, G., Gramfort, A., et al. 2011a, Journal of Machine Learning Research, 12, 2825

Pedregosa, F., Varoquaux, G., Gramfort, A., et al. 2011b, Journal of Machine Learning Research, 12, 2825

Planck Collaboration, Aghanim, N., Akrami, Y., et al. 2020, A&A, 641, A6

Polsterer, K., Gieseke, F. C., Igel, C., Doser, B., & Gianniotis, N. 2016, ESANN 2016 proceedings, European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning

Polsterer, K. L., Gieseke, F., & Igel, C. 2015, in Astronomical Society of the Pacific Conference Series, Vol. 495, Astronomical Data Analysis Software an Systems XXIV (ADASS XXIV), ed. A. R. Taylor & E. Rosolowsky, 81

Proctor, D. D. 2016, ApJS, 224, 18

Quici, B., Hurley-Walker, N., Seymour, N., et al. 2021, PASA, 38, e008

Quinlan, J. R. 1993, C4.5: Programs for Machine Learning (Elsevier)

Radford, A., Wu, J., Child, R., et al. 2019, OpenAI blog, 1, 9

Ralph, N. O., Norris, R. P., Fang, G., et al. 2019, PASP, 131, 108011

Redmon, J. & Farhadi, A. 2018, arXiv preprint arXiv:1804.02767

Rees, M. J. 1978, Nature, 275, 516

Rees, M. J. 1984, Annual review of astronomy and astrophysics, 22, 471

Ren, S., He, K., Girshick, R., & Sun, J. 2015, in Advances in neural information processing systems, 91–99

Rice, J. 2006, Mathematical Statistics and Data Analysis, Advanced series (Cengage Learning)

Richter, G. A. 1975, Astronomische Nachrichten, 296, 65

Ringermacher, H. I. & Mead, L. R. 2009, MNRAS, 397, 164

Robotham, A. S. G., Davies, L. J. M., Driver, S. P., et al. 2018, MNRAS, 476, 3137

Rombach, R., Blattmann, A., Lorenz, D., Esser, P., & Ommer, B. 2021, High-Resolution Image Synthesis with Latent Diffusion Models

Ronneberger, O., Fischer, P., & Brox, T. 2015, in Medical Image Computing and Computer-Assisted Intervention–MICCAI 2015: 18th International Conference, Munich, Germany, October 5-9, 2015, Proceedings, Part III 18, Springer, 234–241

Rosenblatt, F. 1958, Psychological review, 65, 386

Rudnick, L. & Owen, F. N. 1976, ApJ, 203, L107

Rumelhart, D. E., Hinton, G. E., Williams, R. J., et al. 1988, Cognitive modeling, 5, 1

Rykoff, E. S., Rozo, E., Hollowood, D., et al. 2016, ApJS, 224, 1

Ryle, M. & Vonberg, D. D. 1946, Nature, 158, 339

Sabater, J., Best, P. N., Tasse, C., et al. 2021, A&A, 648, A2

Sakelliou, I. & Merrifield, M. R. 2000, MNRAS, 311, 649

Saripalli, L., Subrahmanyan, R., Thorat, K., et al. 2012, ApJS, 199, 27

Scaife, A. M. M. & Porter, F. 2021, MNRAS, 503, 2369

Schaaff, A., Guyot, A., Boch, T., & Derriere, S. 2019, Astronomical Data Analysis Software and Systems XXVII, 523, 107

Schilizzi, R. T. 2004, in Ground-based Telescopes, Vol. 5489, International Society for Optics and Photonics, 62–71

Schlafly, E. F., Meisner, A. M., & Green, G. M. 2019, ApJS, 240, 30

Schmidt, M. 1963, Nature, 197, 1040

Schneider, P. 2006, Extragalactic astronomy and cosmology: an introduction, Vol. 146 (Springer)

Schoenmakers, A. P., de Bruyn, A. G., Röttgering, H. J. A., van der Laan, H., & Kaiser, C. R. 2000, MNRAS, 315, 371

Segal, G., Parkinson, D., Norris, R. P., & Swan, J. 2018, Identifying complex sources in large astronomical data using a coarse-grained complexity measure

Settles, B. 2009, Active Learning Literature Survey, Tech. rep., University of Wisconsin-Madison Department of Computer Sciences

Shimwell, T. W., Hardcastle, M. J., Tasse, C., et al. 2022, A&A, 659, A1

Shimwell, T. W., Röttgering, H. J. A., Best, P. N., et al. 2017, A&A, 598, A104

Shimwell, T. W., Tasse, C., Hardcastle, M. J., et al. 2019, A&A, 622, A1

Shimwell, T. W., Tasse, C., Hardcastle, M. J., et al. 2018, Astronomy & Astrophysics

Shwartz-Ziv, R. & LeCun, Y. 2023, arXiv preprint arXiv:2304.09355

Silver, D., Huang, A., Maddison, C. J., et al. 2016, Nature, 529, 484

Simonte, M., Andernach, H., Brüggen, M., et al. 2022, MNRAS, 515, 2032

Singh, A., Thakur, N., & Sharma, A. 2016, in 2016 3rd International Conference on Computing for Sustainable Global Development (INDIACom), Ieee, 1310–1315

Skrutskie, M. F., Cutri, R. M., Stiening, R., et al. 2006, AJ, 131, 1163

Slijepcevic, I. V., Scaife, A. M. M., Walmsley, M., et al. 2022, MNRAS, 514, 2599

Smith, D. J. B., Haskell, P., Gürkan, G., et al. 2021, A&A, 648, A6

Snellen, I. A., De Kok, R. J., De Mooij, E. J., & Albrecht, S. 2010, Nature, 465, 1049

Speagle, J. S. & Eisenstein, D. J. 2017a, MNRAS, 469, 1186

Speagle, J. S. & Eisenstein, D. J. 2017b, MNRAS, 469, 1205

Strobl, C., Boulesteix, A.-L., Zeileis, A., & Hothorn, T. 2007, BMC bioinformatics, 8, 1

Subramanian, K. 2016a, Reports on Progress in Physics, 79, 076901

Subramanian, K. 2016b, Reports on Progress in Physics, 79, 076901

Sun, C., Shrivastava, A., Singh, S., & Gupta, A. 2017, in Proceedings of the IEEE international conference on computer vision, 843–852

Sutherland, W. & Saunders, W. 1992, MNRAS, 259, 413

Sutskever, I., Martens, J., Dahl, G., & Hinton, G. 2013, in International conference on machine learning, PMLR, 1139–1147

Süveges, M., Barblan, F., Lecoeur-Taïbi, I., et al. 2017, A&A, 603, A117

Sweijen, F., van Weeren, R. J., Röttgering, H. J. A., et al. 2022, Nature Astronomy, 6, 350

Szabo, T., Pierpaoli, E., Dong, F., Pipino, A., & Gunn, J. 2011, ApJ, 736, 21

Szeliski, R. 2022, Computer vision: algorithms and applications (Springer Nature)

Tan, M. & Le, Q. 2019, in International conference on machine learning, PMLR, 6105–6114

Tang, H., Scaife, A. M. M., & Leahy, J. P. 2019, MNRAS, 488, 3358

Tang, H., Scaife, A. M. M., Wong, O. I., et al. 2020, MNRAS, 499, 68

Tasse, C., Shimwell, T., Hardcastle, M. J., et al. 2021, A&A, 648, A1

The Astropy Collaboration, Price-Whelan, A. M. Price-Whelan, A. M., Sipőcz, B. M., et al. 2018, AJ, 156, 123

Thompson, A. R., Moran, J. M., & Swenson, George W., J. 2017, Interferometry and Synthesis in Radio Astronomy, 3rd Edition

Tinetti, G., Vidal-Madjar, A., Liang, M.-C., et al. 2007, Nature, 448, 169

Tully, R. B. 1988, Nearby galaxies catalog

Turner, R. J. & Shabala, S. S. 2015, ApJ, 806, 59

Tyson, J. A. 2003, Physics Today, 56, 63

Uijlings, J. R., Van De Sande, K. E., Gevers, T., & Smeulders, A. W. 2013, International journal of computer vision, 104, 154

Ultsch, A. 1990, in Proceedings INNC'90, International Neural Network Conference, 1990, Kluwer, 305–308

van Breugel, W. J. M. 1980, A&A, 88, 248

van Cittert, P. H. 1934, Physica, 1, 201

van Haarlem, M. P., Wise, M. W., Gunst, A. W., et al. 2013, A&A, 556, A2

van Velzen, S., Falcke, H., & Körding, E. 2015, MNRAS, 446, 2985

van Weeren, R. J., Andrade-Santos, F., Dawson, W. A., et al. 2017, Nature Astronomy, 1, 0005

van Weeren, R. J., de Gasperin, F., Akamatsu, H., et al. 2019, Space Sci. Rev., 215, 16

Vaswani, A., Shazeer, N., Parmar, N., et al. 2017, Advances in neural information processing systems, 30

Vazza, F., Brüggen, M., Gheller, C., et al. 2017, Classical and Quantum Gravity, 34, 234001

Vazza, F., Locatelli, N., Rajpurohit, K., et al. 2021, Galaxies, 9, 109

Vazza, F., Locatelli, N., Rajpurohit, K., et al. 2021, Galaxies, 9, 109

Veron-Cetty, M. P. & Veron, P. 2006, VizieR Online Data Catalog, 7248, 0

Villmann, T., Der, R., & Martinetz, T. 1994, in Proceedings of the IEEE International Conference on Neural Networks (ICNN-94), Orlando, Vol. II, 645–648

Voulodimos, A., Doulamis, N., Doulamis, A., Protopapadakis, E., et al. 2018, Computational intelligence and neuroscience, 2018

Wake, D. A., Bundy, K., Diamond-Stanic, A. M., et al. 2017, AJ, 154, 86

Walmsley, M., Scaife, A. M. M., Lintott, C., et al. 2022a, MNRAS, 513, 1581

Walmsley, M., Slijepcevic, I. V., Bowles, M., & Scaife, A. M. M. 2022b, arXiv e-prints, arXiv:2206.11927

Walmsley, M., Smith, L., Lintott, C., et al. 2020, MNRAS, 491, 1554

Wang, W., Dai, J., Chen, Z., et al. 2022, arXiv preprint arXiv:2211.05778

Webster, B., Croston, J. H., Mingo, B., et al. 2021, MNRAS, 500, 4921

Wen, Z. L., Han, J. L., & Liu, F. S. 2012, ApJS, 199, 34

Wenger, M., Ochsenbein, F., Egret, D., et al. 2000, A&AS, 143, 9

White, R. L., Becker, R. H., Helfand, D. J., & Gregg, M. D. 1997, ApJ, 475, 479

Widrow, L. M., Ryu, D., Schleicher, D. R. G., et al. 2012, Space Sci. Rev., 166, 37

Wilber, A., Brüggen, M., Bonafede, A., et al. 2019, A&A, 622, A25

Willett, K. W., Lintott, C. J., Bamford, S. P., et al. 2013, MNRAS, 435, 2835

Williams, W. L., Hardcastle, M. J., Best, P. N., et al. 2019, A&A, 622, A2

Wilman, R. J., Miller, L., Jarvis, M. J., et al. 2008, MNRAS, 388, 1335

Wright, E. L., Eisenhardt, P. R. M., Mainzer, A. K., et al. 2010, AJ, 140, 1868

Wu, C., Wong, O. I., Rudnick, L., et al. 2019, MNRAS, 482, 1211

Wu, Y., Kirillov, A., Massa, F., Lo, W.-Y., & Girshick, R. 2019, Detectron2, https://github.com/facebookresearch/detectron2

Xie, S., Girshick, R., Dollár, P., Tu, Z., & He, K. 2017, in Proceedings of the IEEE conference on computer vision and pattern recognition, 1492–1500

Yoon, J. H., Schawinski, K., Sheen, Y.-K., Ree, C. H., & Yi, S. K. 2008, ApJS, 176, 414

Yuan, Z. S., Han, J. L., & Wen, Z. L. 2016, MNRAS, 460, 3669

Zbontar, J., Jing, L., Misra, I., LeCun, Y., & Deny, S. 2021, arXiv e-prints, arXiv:2103.03230

Zernike, F. 1938, Physica, 5, 785

Zhang, C., Bengio, S., & Singer, Y. 2019, arXiv preprint arXiv:1902.01996

Zhang, H., Li, F., Liu, S., et al. 2022, arXiv e-prints, arXiv:2203.03605

Zheng, H., Tegmark, M., Dillon, J. S., et al. 2017, MNRAS, 464, 3486

Zhou, Z.-H. & Zhou, Z.-H. 2021, Machine Learning, 315

Zhuang, F., Qi, Z., Duan, K., et al. 2020, Proceedings of the IEEE, 109, 43