

# Vivek S Borkar

## List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

128  
papers

1,927  
citations

20  
h-index

41  
g-index

145  
ext. papers

2,338  
ext. citations

2.3  
avg, IF

5.46  
L-index

#	Paper	IF	Citations
128	Whittle index based Q-learning for restless bandits with average reward. <i>Automatica</i> , <b>2022</b> , 139, 1101865-7	5.7	2
127	User Association in Dense mmWave Networks as Restless Bandits. <i>IEEE Transactions on Vehicular Technology</i> , <b>2022</b> , 1-1	6.8	1
126	Accelerating MCMC by Rare Intermittent Resets. <i>Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering</i> , <b>2021</b> , 107-125	0.2	1
125	Empirical Q-Value Iteration. <i>Stochastic Systems</i> , <b>2021</b> , 11, 1-18	1.7	1
124	Simultaneous Small Noise Limit for Singularly Perturbed Slow-Fast Coupled Diffusions. <i>Applied Mathematics and Optimization</i> , <b>2021</b> , 83, 2327-2374	1.5	1
123	Online Reinforcement Learning of Optimal Threshold Policies for Markov Decision Processes. <i>IEEE Transactions on Automatic Control</i> , <b>2021</b> , 1-1	5.9	2
122	A concentration bound for contractive stochastic approximation. <i>Systems and Control Letters</i> , <b>2021</b> , 153, 104947	2.4	1
121	Scheduling in wireless networks with spatial reuse of spectrum as restless bandits. <i>Performance Evaluation</i> , <b>2021</b> , 149-150, 102208	1.2	0
120	Prospect-theoretic Q-learning. <i>Systems and Control Letters</i> , <b>2021</b> , 156, 105009	2.4	0
119	Opinion shaping in social networks using reinforcement learning. <i>IEEE Transactions on Control of Network Systems</i> , <b>2021</b> , 1-1	4	0
118	A Variational Characterization of the Risk-Sensitive Average Reward for Controlled Diffusions on $\mathbb{R}^d$ . <i>SIAM Journal on Control and Optimization</i> , <b>2020</b> , 58, 3785-3813	1.9	1
117	Controlled Versions of the Collatz-Wielandt and Donsker-Varadhan Formulae. <i>Infosys Science Foundation Series</i> , <b>2020</b> , 199-214	0.1	
116	Low Complexity Online Radio Access Technology Selection Algorithm in LTE-WiFi HetNet. <i>IEEE Transactions on Mobile Computing</i> , <b>2020</b> , 19, 376-389	4.6	8
115	On the fastest finite Markov processes. <i>Journal of Mathematical Analysis and Applications</i> , <b>2020</b> , 481, 123488	1.1	
114	A Structure-aware Online Learning Algorithm for Markov Decision Processes <b>2019</b> ,		3
113	LP Formulations of Discrete Time Long-Run Average Optimal Control Problems: The NonErgodic Case. <i>SIAM Journal on Control and Optimization</i> , <b>2019</b> , 57, 1783-1817	1.9	5
112	A Concentration Bound for Stochastic Approximation via Alekseev's Formula. <i>Stochastic Systems</i> , <b>2019</b> , 9, 1-26	1.7	8

111	Stochastic approximation algorithms for rumor source inference on graphs. <i>Performance Evaluation</i> , <b>2019</b> , 132, 1-20	1.2	3
110	Metastability in Stochastic Replicator Dynamics. <i>Dynamic Games and Applications</i> , <b>2019</b> , 9, 366-390	1.1	8
109	Non-asymptotic error bounds for constant stepsize stochastic approximation for tracking mobile agents. <i>Mathematics of Control, Signals, and Systems</i> , <b>2019</b> , 31, 589-614	1.3	1
108	On LP Formulations of Optimal Control Problems with Time Averaging and Time Discounting Criteria in Non-Ergodic Case <b>2019</b> ,		1
107	A learning algorithm for the Whittle index policy for scheduling web crawlers <b>2019</b> ,		1
106	Linear Programming Formulation of Long-Run Average Optimal Control Problem. <i>Journal of Optimization Theory and Applications</i> , <b>2019</b> , 181, 101-125	1.6	6
105	Aerial monitoring of slow moving convoys using elliptical orbits. <i>European Journal of Control</i> , <b>2019</b> , 46, 90-102	2.5	2
104	. <i>IEEE Transactions on Control of Network Systems</i> , <b>2018</b> , 5, 446-455	4	14
103	A reinforcement learning algorithm for restless bandits <b>2018</b> ,		5
102	Q-learning for Markov decision processes with a satisfiability criterion. <i>Systems and Control Letters</i> , <b>2018</b> , 113, 45-51	2.4	5
101	Reinforcement learning, Sequential Monte Carlo and the EM algorithm. <i>Sadhana - Academy Proceedings in Engineering Sciences</i> , <b>2018</b> , 43, 1	1	
100	Opportunistic Scheduling as Restless Bandits. <i>IEEE Transactions on Control of Network Systems</i> , <b>2018</b> , 5, 1952-1961	4	17
99	Concentration bounds for two time scale stochastic approximation <b>2018</b> ,		4
98	Distributed Stochastic Approximation with Local Projections. <i>SIAM Journal on Optimization</i> , <b>2018</b> , 28, 3375-3401	2	7
97	Temporally Agnostic Rumor-Source Detection. <i>IEEE Transactions on Signal and Information Processing Over Networks</i> , <b>2017</b> , 3, 316-329	2.8	9
96	Whittle indexability in egalitarian processor sharing systems. <i>Annals of Operations Research</i> , <b>2017</b> , 1	3.2	8
95	A Distributed Boyle--Dykstra--Han Scheme. <i>SIAM Journal on Optimization</i> , <b>2017</b> , 27, 1880-1897	2	4
94	Approachability in Stackelberg Stochastic Games with Vector Costs. <i>Dynamic Games and Applications</i> , <b>2017</b> , 7, 422-442	1.1	4

93	Distributed Reinforcement Learning via Gossip. <i>IEEE Transactions on Automatic Control</i> , <b>2017</b> , 62, 1465-1470	4.7	16
92	Whittle Index for Partially Observed Binary Markov Decision Processes. <i>IEEE Transactions on Automatic Control</i> , <b>2017</b> , 62, 6614-6618	5.9	4
91	Controlling G-AIMD by index policy <b>2017</b> ,		4
90	Linear and dynamic programming approaches to degenerate risk-sensitive reward processes <b>2017</b> ,		1
89	Vector field guidance for convoy monitoring using elliptical orbits <b>2017</b> ,		4
88	Fast rumor source identification via random walks. <i>Social Network Analysis and Mining</i> , <b>2016</b> , 6, 1	2.2	14
87	Event-driven stochastic approximation. <i>Indian Journal of Pure and Applied Mathematics</i> , <b>2016</b> , 47, 291-299	3	1
86	Gaussian approximations in high dimensional estimation. <i>Systems and Control Letters</i> , <b>2016</b> , 92, 42-45	2.4	4
85	Risk-Sensitive Control and an Abstract Collatz-Wielandt Formula. <i>Journal of Theoretical Probability</i> , <b>2016</b> , 29, 1458-1484	0.5	10
84	Whittle index policy for crawling ephemeral content <b>2015</b> ,		4
83	Asynchronous Gossip for Averaging and Spectral Ranking. <i>IEEE Journal on Selected Topics in Signal Processing</i> , <b>2014</b> , 8, 703-716	7.5	5
82	Blackwell's approachability in stackelberg stochastic games: A learning version <b>2014</b> ,		1
81	An actor critic algorithm based on Grassmanian search <b>2014</b> ,		1
80	Reinforcement learning, particle filters and the EM algorithm <b>2014</b> ,		1
79	Risk-Constrained Markov Decision Processes. <i>IEEE Transactions on Automatic Control</i> , <b>2014</b> , 59, 2574-2579	9	12
78	A stochastic Kaczmarz algorithm for network tomography. <i>Automatica</i> , <b>2014</b> , 50, 910-914	5.7	2
77	Markov chains, Hamiltonian cycles and volumes of convex bodies. <i>Journal of Global Optimization</i> , <b>2013</b> , 55, 633-639	1.5	2
76	Stochastic approximation <b>2013</b> , 18, 1086-1094		4

75	On the diffusion of messages in on-line social networks. <i>Performance Evaluation</i> , <b>2013</b> , 70, 271-285	1.2	10
74	Feature Search in the Grassmanian in Online Reinforcement Learning. <i>IEEE Journal on Selected Topics in Signal Processing</i> , <b>2013</b> , 7, 746-758	7.5	5
73	Adaptive Feature Pursuit: Online Adaptation of Features in Reinforcement Learning <b>2013</b> , 517-534		3
72	Who is the fairest of them all? <b>2012</b> ,		2
71	Asymptotics of the Invariant Measure in Mean Field Models with Jumps. <i>Stochastic Systems</i> , <b>2012</b> , 2, 322-380	1.7	13
70	Optimal Control of Sleep Periods for Wireless Terminals. <i>IEEE Journal on Selected Areas in Communications</i> , <b>2011</b> , 29, 1605-1617	14.2	22
69	Risk-constrained Markov decision processes <b>2010</b> ,		3
68	. <i>IEEE Transactions on Mobile Computing</i> , <b>2010</b> , 9, 1391-1406	4.6	32
67	Application of nonlinear filtering to credit risk. <i>Operations Research Letters</i> , <b>2010</b> , 38, 527-532	1	5
66	On a controlled eigenvalue problem. <i>Systems and Control Letters</i> , <b>2010</b> , 59, 734-735	2.4	3
65	Quasi-stationary distributions as centrality measures for the giant strongly connected component of a reducible graph. <i>Journal of Computational and Applied Mathematics</i> , <b>2010</b> , 234, 3075-3090	2.4	5
64	A New Learning Algorithm for Optimal Stopping. <i>Discrete Event Dynamic Systems: Theory and Applications</i> , <b>2009</b> , 19, 91-113	1	4
63	A novel ACO algorithm for optimization via reinforcement and initial bias. <i>Swarm Intelligence</i> , <b>2009</b> , 3, 3-34	3	9
62	On the Hamiltonicity Gap and doubly stochastic matrices. <i>Random Structures and Algorithms</i> , <b>2009</b> , 34, 502-519	0.8	8
61	Cooperative dynamics and Wardrop equilibria. <i>Systems and Control Letters</i> , <b>2009</b> , 58, 91-93	2.4	3
60	Small noise asymptotics for invariant densities for a class of diffusions: A control theoretic view. <i>Journal of Mathematical Analysis and Applications</i> , <b>2009</b> , 360, 476-484	1.1	8
59	Finite dimensional approximation and Newton-based algorithm for stochastic approximation in Hilbert space. <i>Automatica</i> , <b>2009</b> , 45, 2815-2822	5.7	1
58	Reinforcement Learning [A Bridge Between Numerical Methods and Monte Carlo. <i>Statistical Science and Interdisciplinary Research</i> , <b>2009</b> , 71-91		7

57	An on-line learning algorithm for energy efficient delay constrained scheduling over a fading channel. <i>IEEE Journal on Selected Areas in Communications</i> , <b>2008</b> , 26, 732-742	14.2	88
56	Structural Properties of Optimal Transmission Policies Over a Randomly Varying Channel. <i>IEEE Transactions on Automatic Control</i> , <b>2008</b> , 53, 1476-1491	5.9	32
55	A Learning Algorithm for Risk-Sensitive Cost. <i>Mathematics of Operations Research</i> , <b>2008</b> , 33, 880-898	1.5	16
54	A note on linear function approximation using random projections. <i>Systems and Control Letters</i> , <b>2008</b> , 57, 784-786	2.4	5
53	Stochastic Approximation. <i>Texts and Readings in Mathematics</i> , <b>2008</b> ,	0.3	361
52	Common randomness and distributed control: A counterexample. <i>Systems and Control Letters</i> , <b>2007</b> , 56, 568-572	2.4	26
51	Averaging of Singularly Perturbed Controlled Stochastic Differential Equations. <i>Applied Mathematics and Optimization</i> , <b>2007</b> , 56, 169-209	1.5	22
50	An Information Theoretic View of Stochastic Resonance <b>2007</b> ,		1
49	Singular Perturbations in Ergodic Control of Diffusions. <i>SIAM Journal on Control and Optimization</i> , <b>2007</b> , 46, 1562-1577	1.9	11
48	WLC39-3: Power Optimal Opportunistic Scheduling. <i>IEEE Global Telecommunications Conference (GLOBECOM)</i> , <b>2006</b> ,		9
47	A New Distributed Time Synchronization Protocol for Multihop Wireless Networks <b>2006</b> ,		115
46	Stochastic approximation with controlled Markov noise. <i>Systems and Control Letters</i> , <b>2006</b> , 55, 139-145	2.4	20
45	Distributed self-tuning of sensor networks. <i>Wireless Networks</i> , <b>2006</b> , 12, 531-544	2.5	3
44	Controlled diffusion processes. <i>Probability Surveys</i> , <b>2005</b> , 2, 213	2.2	40
43	CORRECTION TO "TRANSMISSION RATE CONTROL OVER RANDOMLY VARYING CHANNELS" <i>Probability in the Engineering and Informational Sciences</i> , <b>2005</b> , 19, 471-471	0.6	
42	TRANSMISSION RATE CONTROL OVER RANDOMLY VARYING CHANNELS. <i>Probability in the Engineering and Informational Sciences</i> , <b>2005</b> , 19, 73-82	0.6	6
41	Directed graphs, Hamiltonicity and doubly stochastic matrices. <i>Random Structures and Algorithms</i> , <b>2004</b> , 25, 376-395	0.8	9
40	A further remark on dynamic programming for partially observed Markov processes. <i>Stochastic Processes and Their Applications</i> , <b>2004</b> , 112, 79-93	1.1	11

39	Ergodic Control of Partially Degenerate Diffusions in a Compact Domain. <i>Stochastic and Stochastics Reports</i> , <b>2003</b> , 75, 221-231		1
38	Newton's method <b>2002</b> , 7, 31-36		
37	Mathematical Programming Embeddings of Logic. <i>Journal of Automated Reasoning</i> , <b>2002</b> , 29, 91-106	1	
36	Convex Analytic Methods in Markov Decision Processes. <i>Profiles in Operations Research</i> , <b>2002</b> , 347-375	1	32
35	Method in the madness <b>2000</b> , 5, 37-46		
34	The value function in ergodic control of diffusion processes with partial observations II. <i>Applicationes Mathematicae</i> , <b>2000</b> , 27, 455-464	2	2
33	Uniform Stability of Controlled Markov Processes. <i>Kluwer International Series in Engineering and Computer Science</i> , <b>2000</b> , 107-120		1
32	Evolutionary games with two timescales. <i>Physica D: Nonlinear Phenomena</i> , <b>1999</b> , 125, 155-166	3.3	2
31	Erratum to Ergodic control of partially observed Markov chains [Systems Control Lett. 34 (1998) 185-189]. <i>Systems and Control Letters</i> , <b>1999</b> , 37, 181	2.4	1
30	Actor-Critic-Type Learning Algorithms for Markov Decision Processes. <i>SIAM Journal on Control and Optimization</i> , <b>1999</b> , 38, 94-123	1.9	105
29	Ergodic control of partially observed Markov chains. <i>Systems and Control Letters</i> , <b>1998</b> , 34, 185-189	2.4	7
28	Asynchronous Stochastic Approximations. <i>SIAM Journal on Control and Optimization</i> , <b>1998</b> , 36, 840-851	1.9	84
27	A two Timescale Stochastic Approximation Scheme for Simulation-Based Parametric Optimization. <i>Probability in the Engineering and Informational Sciences</i> , <b>1998</b> , 12, 519-531	0.6	35
26	Multiscale Stochastic Approximation for Parametric Optimization of Hidden Markov Models. <i>Probability in the Engineering and Informational Sciences</i> , <b>1997</b> , 11, 509-522	0.6	20
25	The actor-critic algorithm as multi-time-scale stochastic approximation. <i>Sadhana - Academy Proceedings in Engineering Sciences</i> , <b>1997</b> , 22, 525-543	1	6
24	Stochastic approximation with two time scales. <i>Systems and Control Letters</i> , <b>1997</b> , 29, 291-294	2.4	162
23	Occupation measures for controlled Markov processes: characterization and optimality. <i>Annals of Probability</i> , <b>1996</b> , 24, 1531	1.9	68
22	A Convex Analytic Framework for Ergodic Control of Semi-Markov Processes. <i>Mathematics of Operations Research</i> , <b>1995</b> , 20, 923-936	1.5	7

21	On extremal solutions to stochastic control problems, II. <i>Applied Mathematics and Optimization</i> , <b>1993</b> , 28, 49-56	1.5	2
20	Pathwise recurrence orders and simulated annealing. <i>Journal of Applied Probability</i> , <b>1992</b> , 29, 472-476	0.8	5
19	Weak convergence methods and singularly perturbed stochastic control and filtering problems. <i>Automatica</i> , <b>1992</b> , 28, 1071-1072	5.7	
18	A remark on control of partially observed Markov chains. <i>Annals of Operations Research</i> , <b>1991</b> , 29, 429-438	3.2	4
17	On extremal solutions to stochastic control problems. <i>Applied Mathematics and Optimization</i> , <b>1991</b> , 24, 317-330	1.5	7
16	Ergodic and adaptive control of nearest-neighbor motions. <i>Mathematics of Control, Signals, and Systems</i> , <b>1991</b> , 4, 81-98	1.3	7
15	Controlled Markov chains with constraints. <i>Sadhana - Academy Proceedings in Engineering Sciences</i> , <b>1990</b> , 15, 405-413	1	11
14	Ergodic control of multidimensional diffusions, II: Adaptive control. <i>Applied Mathematics and Optimization</i> , <b>1990</b> , 21, 191-220	1.5	20
13	Controlled diffusions with constraints. <i>Journal of Mathematical Analysis and Applications</i> , <b>1990</b> , 152, 88-108	10.8	21
12	Mimicking finite dimensional marginals of a controlled diffusion by simpler controls. <i>Stochastic Processes and Their Applications</i> , <b>1989</b> , 31, 333-342	1.1	4
11	A topology for Markov controls. <i>Applied Mathematics and Optimization</i> , <b>1989</b> , 20, 55-62	1.5	10
10	Minimum toll control of diffusions. <i>Systems and Control Letters</i> , <b>1989</b> , 12, 343-349	2.4	
9	Controlled diffusions with boundary-crossing costs. <i>Applied Mathematics and Optimization</i> , <b>1988</b> , 18, 67-83	1.5	4
8	The probabilistic structure of controlled diffusion processes. <i>Acta Applicandae Mathematicae</i> , <b>1988</b> , 11, 19-48	1.1	4
7	A convex analytic approach to Markov decision processes. <i>Probability Theory and Related Fields</i> , <b>1988</b> , 78, 583-602	1.4	56
6	Control of a partially observed diffusion up to an exit time. <i>Systems and Control Letters</i> , <b>1987</b> , 8, 429-434	2.4	2
5	A comparison principle for certain convex functionals of a diffusion process without drift. <i>Stochastic Processes and Their Applications</i> , <b>1987</b> , 25, 245-248	1.1	1
4	A note on controlled diffusions on line with time-averaged cost. <i>Systems and Control Letters</i> , <b>1984</b> , 4, 1-4	2.4	5



- 3 Pathwise smoothing of Markov processes with noisy observations. *Journal of Mathematical Analysis and Applications*, **1982**, 90, 525-535 1.1
- 2 Parameter estimation in stochastic systems: some recent results and applications. *Systems and Control Letters*, **1982**, 1, 221-226 2.4
- 1 Revisiting SIR in the Age of COVID-19: Explicit Solutions and Control Problems. *SIAM Journal on Control and Optimization*, S370-S395 1.9