

# Shalabh Bhatnagar

## List of Publications by Year in descending order

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149  
papers

2,365  
citations

361413

20  
h-index

289244

40  
g-index

154  
all docs

154  
docs citations

154  
times ranked

1480  
citing authors

#	ARTICLE	IF	CITATIONS
1	Generalized Second-Order Value Iteration in Markov Decision Processes. IEEE Transactions on Automatic Control, 2022, 67, 4241-4247.	5.7	1
2	A Generalized Minimax Q-learning Algorithm for Two-Player Zero-Sum Stochastic Games. IEEE Transactions on Automatic Control, 2022, , 1-1.	5.7	1
3	Robust Traffic Signal Timing Control using Multiagent Twin Delayed Deep Deterministic Policy Gradients. , 2022, , .		1
4	Analyzing Approximate Value Iteration Algorithms. Mathematics of Operations Research, 2022, 47, 2138-2159.	1.3	3
5	Dynamic Mirror Descent based Model Predictive Control for Accelerating Robot Learning. , 2022, , .		0
6	Novel First Order Bayesian Optimization with an Application to Reinforcement Learning. Applied Intelligence, 2021, 51, 1565-1579.	5.3	8
7	Asynchronous Stochastic Approximations With Asymptotically Biased Errors and Deep Multiagent Learning. IEEE Transactions on Automatic Control, 2021, 66, 3969-3983.	5.7	4
8	Memory-Based Deep Reinforcement Learning for Obstacle Avoidance in UAV With Limited Environment Knowledge. IEEE Transactions on Intelligent Transportation Systems, 2021, 22, 107-118.	8.0	122
9	Stochastic Approximation With Iterate-Dependent Markov Noise Under Verifiable Conditions in Compact State Space With the Stability of Iterates Not Ensured. IEEE Transactions on Automatic Control, 2021, 66, 5941-5954.	5.7	3
10	On tight bounds for function approximation error in risk-sensitive reinforcement learning. Systems and Control Letters, 2021, 150, 104899.	2.3	2
11	Random Directions Stochastic Approximation With Deterministic Perturbations. IEEE Transactions on Automatic Control, 2020, 65, 2450-2465.	5.7	4
12	Successive Over-Relaxation $\{Q\}$ -Learning. , 2020, 4, 55-60.		7
13	Analysis of Stochastic Approximation Schemes With Set-Valued Maps in the Absence of a Stability Guarantee and Their Stabilization. IEEE Transactions on Automatic Control, 2020, 65, 1100-1115.	5.7	4
14	Learning Stable Manoeuvres in Quadrupe Robots from Expert Demonstrations. , 2020, , .		2
15	Stochastic Recursive Inclusions in Two Timescales with Nonadditive Iterate-Dependent Markov Noise. Mathematics of Operations Research, 2020, 45, 1405-1444.	1.3	8
16	Hierarchical Average Reward Policy Gradient Algorithms (Student Abstract). Proceedings of the AAAI Conference on Artificial Intelligence, 2020, 34, 13777-13778.	4.9	0
17	Deep Reinforcement Learning with Successive Over-Relaxation and its Application in Autoscaling Cloud Resources. , 2020, , .		3
18	Learning-Based Resource Allocation in Industrial IoT Systems. , 2020, , .		1

#	ARTICLE	IF	CITATIONS
19	Reinforcement learning algorithm for non-stationary environments. Applied Intelligence, 2020, 50, 3590-3606.	5.3	51
20	Generalized Speedy Q-Learning. , 2020, 4, 524-529.		3
21	Stochastic Game Frameworks for Efficient Energy Management in Microgrid Networks. , 2020, , .		1
22	An Adaptive Sampling Algorithm for Policy Evaluation. , 2019, , .		0
23	Stability of Stochastic Approximations With $\epsilon$ -Controlled Markov Noise and Temporal Difference Learning. IEEE Transactions on Automatic Control, 2019, 64, 2614-2620.	5.7	11
24	Efficient Adaptive Resource Provisioning for Cloud Applications using Reinforcement Learning. , 2019, , .		7
25	Realizing Learned Quadruped Locomotion Behaviors through Kinematic Motion Primitives. , 2019, , .		11
26	An Online Sample-Based Method for Mode Estimation Using ODE Analysis of Stochastic Approximation Algorithms. , 2019, 3, 697-702.		0
27	Design, Development and Experimental Realization of A Quadrupedal Research Platform: Stoch. , 2019, , .		8
28	Efficient Budget Allocation and Task Assignment in Crowdsourcing. , 2019, , .		0
29	Learning Active Spine Behaviors for Dynamic and Efficient Locomotion in Quadruped Robots. , 2019, , .		16
30	Stochastic Approximation Trackers for Model-Based Search. , 2019, , .		0
31	An Incremental Algorithm for Estimating Extreme Quantiles. , 2019, , .		0
32	Auto-scaling Resources for Cloud Applications using Reinforcement learning. , 2019, , .		1
33	An Adaptive and Incremental Approach to Quantile Estimation. , 2019, , .		0
34	Trajectory based Deep Policy Search for Quadrupedal Walking. , 2019, , .		5
35	Predictive and Prescriptive Analytics for Performance Optimization: Framework and a Case Study on a Large-Scale Enterprise System. , 2019, , .		0
36	Analysis of Gradient Descent Methods With Nondiminishing Bounded Errors. IEEE Transactions on Automatic Control, 2018, 63, 1465-1471.	5.7	14

#	ARTICLE	IF	CITATIONS
37	An incremental off-policy search in a model-free Markov decision process using a single sample path. Machine Learning, 2018, 107, 969-1011.	5.4	2
38	Gradient-Based Adaptive Stochastic Search for Simulation Optimization Over Continuous Space. INFORMS Journal on Computing, 2018, 30, 154-167.	1.7	7
39	Novel Sensor Scheduling Scheme for Intruder Tracking in Energy Efficient Sensor Networks. IEEE Wireless Communications Letters, 2018, 7, 712-715.	5.0	13
40	A Linearly Relaxed Approximate Linear Program for Markov Decision Processes. IEEE Transactions on Automatic Control, 2018, 63, 1185-1191.	5.7	5
41	Stochastic recursive inclusions with non-additive iterate-dependent Markov noise. Stochastics, 2018, 90, 330-363.	1.1	8
42	Two Time-Scale Stochastic Approximation with Controlled Markov Noise and Off-Policy Temporal-Difference Learning. Mathematics of Operations Research, 2018, 43, 130-151.	1.3	13
43	A stochastic approximation approach to active queue management. Telecommunication Systems, 2018, 68, 89-104.	2.5	13
44	A unified decision making framework for supply and demand management in microgrid networks. , 2018, , .		1
45	Generalized Deterministic Perturbations For Stochastic Gradient Search. , 2018, , .		0
46	An online prediction algorithm for reinforcement learning with linear function approximation using cross entropy method. Machine Learning, 2018, 107, 1385-1429.	5.4	10
47	A Generalization of the Borkar-Meyn Theorem for Stochastic Recursive Inclusions. Mathematics of Operations Research, 2017, 42, 648-661.	1.3	16
48	A stability criterion for two timescale stochastic approximation schemes. Automatica, 2017, 79, 108-114.	5.0	18
49	Scalable Performance Tuning of Hadoop MapReduce: A Noisy Gradient Approach. , 2017, , .		11
50	Adaptive System Optimization Using Random Directions Stochastic Approximation. IEEE Transactions on Automatic Control, 2017, 62, 2223-2238.	5.7	17
51	Quasi-Newton smoothed functional algorithms for unconstrained and constrained simulation optimization. Computational Optimization and Applications, 2017, 66, 533-556.	1.6	3
52	Adaptive mean queue size and its rate of change: queue management with random dropping. Telecommunication Systems, 2017, 65, 281-295.	2.5	25
53	An Incremental Fast Policy Search Using a Single Sample Path. Lecture Notes in Computer Science, 2017, , 3-10.	1.3	0
54	A model based search method for prediction in model-free Markov decision process. , 2017, , .		0

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55	Bounds for off-policy prediction in reinforcement learning. , 2017, , .		0
56	Multi-armed bandits based on a variant of Simulated Annealing. Indian Journal of Pure and Applied Mathematics, 2016, 47, 195-212.	0.5	1
57	Improved Hessian estimation for adaptive random directions stochastic approximation. , 2016, , .		0
58	Scalable focussed entity resolution. , 2016, , .		0
59	A randomized algorithm for continuous optimization. , 2016, , .		5
60	A constrained optimization perspective on actor-critic algorithms and application to network routing. Systems and Control Letters, 2016, 92, 46-51.	2.3	2
61	Stochastic recursive inclusion in two timescales with an application to the Lagrangian dual problem. Stochastics, 2016, 88, 1173-1187.	1.1	5
62	Actor-Critic Algorithms with Online Feature Adaptation. ACM Transactions on Modeling and Computer Simulation, 2016, 26, 1-26.	0.8	5
63	Multiscale Q-learning with linear function approximation. Discrete Event Dynamic Systems: Theory and Applications, 2016, 26, 477-509.	1.5	4
64	Simultaneous perturbation methods for adaptive labor staffing in service systems. Simulation, 2015, 91, 432-455.	1.8	1
65	Decentralized learning for traffic signal control. , 2015, , .		14
66	Energy Sharing for Multiple Sensor Nodes With Finite Buffers. IEEE Transactions on Communications, 2015, 63, 1811-1823.	7.8	18
67	Necessary and sufficient conditions for optimality in constrained general sum stochastic games. Systems and Control Letters, 2015, 85, 8-15.	2.3	1
68	Simultaneous Perturbation Newton Algorithms for Simulation Optimization. Journal of Optimization Theory and Applications, 2015, 164, 621-643.	1.5	5
69	A Stochastic Approximation Algorithm for Quantile Estimation. Lecture Notes in Computer Science, 2015, , 311-319.	1.3	2
70	Multi-agent reinforcement learning for traffic signal control. , 2014, , .		55
71	Two timescale convergent Q-learning for sleep-scheduling in wireless sensor networks. Wireless Networks, 2014, 20, 2589-2604.	3.0	5
72	A simulation-based algorithm for optimal pricing policy under demand uncertainty. International Transactions in Operational Research, 2014, 21, 737-760.	2.7	4

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73	Approximate Dynamic Programming with (min; +) linear function approximation for Markov decision processes. , 2014, , .		2
74	Newton-based stochastic optimization using $q$ -Gaussian smoothed functional algorithms. Automatica, 2014, 50, 2606-2614.	5.0	2
75	Adaptive sleep-wake control using reinforcement learning in sensor networks. , 2014, , .		2
76	Smoothed Functional Algorithms for Stochastic Optimization Using $q$ -Gaussian Distributions. ACM Transactions on Modeling and Computer Simulation, 2014, 24, 1-26.	0.8	8
77	Simulation optimization via gradient-based stochastic search. , 2014, , .		4
78	An actor critic algorithm based on Grassmanian search. , 2014, , .		1
79	Q-Learning Based Energy Management Policies for a Single Sensor Node with Finite Buffer. IEEE Wireless Communications Letters, 2013, 2, 82-85.	5.0	42
80	Adaptive Smoothed Functional Algorithms for Optimal Staffing Levels in Service Systems. Service Science, 2013, 5, 29-55.	1.3	5
81	Feature Search in the Grassmanian in Online Reinforcement Learning. IEEE Journal on Selected Topics in Signal Processing, 2013, 7, 746-758.	10.8	5
82	$q$ -Gaussian based Smoothed Functional algorithms for stochastic optimization. , 2012, , .		6
83	General-sum stochastic games: Verifiability conditions for Nash equilibria. Automatica, 2012, 48, 2923-2930.	5.0	4
84	Threshold Tuning Using Stochastic Optimization for Graded Signal Control. IEEE Transactions on Vehicular Technology, 2012, 61, 3865-3880.	6.3	28
85	A novel Q-learning algorithm with function approximation for constrained Markov decision processes. , 2012, , .		7
86	An Online Actor-Critic Algorithm with Function Approximation for Constrained Markov Decision Processes. Journal of Optimization Theory and Applications, 2012, 153, 688-708.	1.5	23
87	Optimal multi-layered congestion based pricing schemes for enhanced QoS. Computer Networks, 2012, 56, 1249-1262.	5.1	5
88	Reinforcement learning with average cost for adaptive control of traffic lights at intersections. , 2011, , .		42
89	Stochastic Algorithms for Discrete Parameter Simulation Optimization. IEEE Transactions on Automation Science and Engineering, 2011, 8, 780-793.	5.2	12
90	Reinforcement Learning With Function Approximation for Traffic Signal Control. IEEE Transactions on Intelligent Transportation Systems, 2011, 12, 412-421.	8.0	198

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91	Stochastic Optimization for Adaptive Labor Staffing in Service Systems. Lecture Notes in Computer Science, 2011, , 487-494.	1.3	6
92	An Optimized SDE Model for Slotted Aloha. IEEE Transactions on Communications, 2011, 59, 1502-1508.	7.8	3
93	Monte-Carlo estimation of time-dependent statistical characteristics of random dynamical systems. Applied Mathematical Modelling, 2011, 35, 3063-3079.	4.2	3
94	The Borkarâ€œMeyn theorem for asynchronous stochastic approximations. Systems and Control Letters, 2011, 60, 472-478.	2.3	13
95	Stochastic approximation algorithms for constrained optimization via simulation. ACM Transactions on Modeling and Computer Simulation, 2011, 21, 1-22.	0.8	18
96	Smoothed Functional and Quasi-Newton Algorithms for Routing in Multi-stage Queueing Network with Constraints. Lecture Notes in Computer Science, 2011, , 175-186.	1.3	2
97	An efficient algorithm for scheduling in bluetooth piconets and scatternets. Wireless Networks, 2010, 16, 1799-1816.	3.0	9
98	An actorâ€œcritic algorithm with function approximation for discounted cost constrained Markov decision processes. Systems and Control Letters, 2010, 59, 760-766.	2.3	31
99	Optimized Policies for the Retransmission Probabilities in Slotted Aloha. Simulation, 2010, 86, 247-261.	1.8	2
100	LMS-2: Towards an algorithm that is as cheap as LMS and almost as efficient as RLS. , 2009, , .		0
101	Fast gradient-descent methods for temporal-difference learning with linear function approximation. , 2009, , .		199
102	Optimal parameter trajectory estimation in parameterized SDEs. ACM Transactions on Modeling and Computer Simulation, 2009, 19, 1-27.	0.8	6
103	A probabilistic constrained nonlinear optimization framework to optimize RED parameters. Performance Evaluation, 2009, 66, 81-104.	1.2	10
104	Natural actorâ€œcritic algorithms. Automatica, 2009, 45, 2471-2482.	5.0	336
105	A proof of convergence of the B-RED and P-RED algorithms for random early detection. IEEE Communications Letters, 2009, 13, 809-811.	4.1	9
106	Ant Colony Optimization Algorithms for Shortest Path Problems. Lecture Notes in Computer Science, 2009, , 37-44.	1.3	10
107	An efficient ad recommendation system for TV programs. Multimedia Systems, 2008, 14, 73-87.	4.7	25
108	New algorithms of the Q-learning type. Automatica, 2008, 44, 1111-1119.	5.0	20

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109	An extension of Wick's theorem. Statistics and Probability Letters, 2008, 78, 2404-2407.	0.7	5
110	SPSA based feature relevance estimation for video retrieval. , 2008, , .		2
111	Simulation-Based Optimization Algorithms for Finite-Horizon Markov Decision Processes. Simulation, 2008, 84, 577-600.	1.8	16
112	An efficient and optimized bluetooth scheduling algorithm for scatternets. , 2008, , .		1
113	Network flow-control using asynchronous stochastic approximation. , 2007, , .		0
114	Solving MDPs using Two-timescale Simulated Annealing with Multiplicative Weights. Proceedings of the American Control Conference, 2007, , .	0.0	0
115	Adaptive Newton-based multivariate smoothed functional algorithms for simulation optimization. ACM Transactions on Modeling and Computer Simulation, 2007, 18, 1-35.	0.8	39
116	Parametrized Actor-Critic Algorithms for Finite-Horizon MDPs. Proceedings of the American Control Conference, 2007, , .	0.0	2
117	Link route pricing for enhanced QoS. , 2007, , .		3
118	Discrete parameter simulation optimization algorithms with applications to admission control with dependent service times. , 2007, , .		5
119	Gelfand's "Yaglom" Perez theorem for generalized relative entropy functionals. Information Sciences, 2007, 177, 5707-5714.	6.9	5
120	On measure-theoretic aspects of nonextensive entropy functionals and corresponding maximum entropy prescriptions. Physica A: Statistical Mechanics and Its Applications, 2007, 384, 758-774.	2.6	6
121	Reinforcement Learning Based Algorithms for Average Cost Markov Decision Processes. Discrete Event Dynamic Systems: Theory and Applications, 2007, 17, 23-52.	1.5	11
122	Fuzzy Clustering Based Ad Recommendation for TV Programs. , 2007, , 175-184.		2
123	An Optimal Weighted-Average Congestion Based Pricing Scheme for Enhanced QoS. , 2007, , 135-145.		1
124	An Efficient and Optimized Bluetooth Scheduling Algorithm for Piconets. , 2007, , 19-30.		3
125	A Reinforcement Learning Based Algorithm for Finite Horizon Markov Decision Processes. , 2006, , .		3
126	Actor-critic algorithms for hierarchical Markov decision processes. Automatica, 2006, 42, 637-644.	5.0	14



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127	Nonextensive triangle equality and other properties of Tsallis relative-entropy minimization. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2006, 361, 124-138.	2.6	21
128	Robust optimization of Random Early Detection. <i>Telecommunication Systems</i> , 2006, 33, 291-316.	2.5	10
129	Partition based pattern synthesis technique with efficient algorithms for nearest neighbor classification. <i>Pattern Recognition Letters</i> , 2006, 27, 1714-1724.	4.2	20
130	A Four-Timescale Algorithm for Constrained Stochastic Optimization of RED. , 2006, , .		0
131	SPSA Algorithms with Measurement Reuse. , 2006, , .		2
132	Overlap pattern synthesis with an efficient nearest neighbor classifier. <i>Pattern Recognition</i> , 2005, 38, 1187-1195.	8.1	18
133	Optimal Threshold Policies for Admission Control in Communication Networks via Discrete Parameter Stochastic Approximation. <i>Telecommunication Systems</i> , 2005, 29, 9-31.	2.5	9
134	Adaptive multivariate three-timescale stochastic approximation algorithms for simulation based optimization. <i>ACM Transactions on Modeling and Computer Simulation</i> , 2005, 15, 74-107.	0.8	53
135	A Discrete Parameter Stochastic Approximation Algorithm for Simulation Optimization. <i>Simulation</i> , 2005, 81, 757-772.	1.8	14
136	Properties of Kullback-Leibler cross-entropy minimization in nonextensive framework. , 2005, , .		1
137	Fusion of multiple approximate nearest neighbor classifiers for fast and efficient classification. <i>Information Fusion</i> , 2004, 5, 239-250.	19.1	19
138	A Simultaneous Perturbation Stochastic Approximation-Based Actor-Critic Algorithm for Markov Decision Processes. <i>IEEE Transactions on Automatic Control</i> , 2004, 49, 592-598.	5.7	25
139	Two-timescale simultaneous perturbation stochastic approximation using deterministic perturbation sequences. <i>ACM Transactions on Modeling and Computer Simulation</i> , 2003, 13, 180-209.	0.8	70
140	A time aggregation approach to Markov decision processes. <i>Automatica</i> , 2002, 38, 929-943.	5.0	115
141	Two-timescale algorithms for simulation optimization of hidden Markov models. <i>IIE Transactions</i> , 2001, 33, 245-258.	2.1	0
142	Two-timescale algorithms for simulation optimization of hidden Markov models. <i>IIE Transactions</i> , 2001, 33, 245-258.	2.1	39
143	Optimal structured feedback policies for ABR flow control using two-timescale SPSA. <i>IEEE/ACM Transactions on Networking</i> , 2001, 9, 479-491.	3.8	27
144	Two Timescale SPSA Algorithms for Rate-Based ABR Flow Control. <i>Kluwer International Series in Engineering and Computer Science</i> , 2000, , 367-378.	0.2	1

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145	<title>Rate-based ABR flow control using two timescale SPSA</title>., 1999, , .		0
146	A two Timescale Stochastic Approximation Scheme for Simulation-Based Parametric Optimization. Probability in the Engineering and Informational Sciences, 1998, 12, 519-531.	0.8	41
147	Multiscale Stochastic Approximation for Parametric Optimization of Hidden Markov Models. Probability in the Engineering and Informational Sciences, 1997, 11, 509-522.	0.8	29
148	An optimal fuel-injection policy for performance enhancement in internal combustion engines. Sadhana - Academy Proceedings in Engineering Sciences, 1997, 22, 545-552.	1.3	0
149	A Convex Analytic Framework for Ergodic Control of Semi-Markov Processes. Mathematics of Operations Research, 1995, 20, 923-936.	1.3	8