Doug A Bowman

List of Publications by Year
in descending order

154 papers	7,176 citations	117625 34 h-index	110387 64 g-index
162 all docs	162 docs citations	162 times ranked	4958 citing authors

#	Article	IF	Citations
1	Questioning naturalism in 3D user interfaces. Communications of the ACM, 2012, 55, 78-88.	4.5	1,113
2	Virtual Reality: How Much Immersion Is Enough?. Computer, 2007, 40, 36-43.	1.1	847
3	An evaluation of techniques for grabbing and manipulating remote objects in immersive virtual environments. , 1997, , .		429
4	Evaluating Display Fidelity and Interaction Fidelity in a Virtual Reality Game. IEEE Transactions on Visualization and Computer Graphics, 2012, 18, 626-633.	4.4	281
5	An Introduction to 3-D User Interface Design. Presence: Teleoperators and Virtual Environments, 2001, 10, 96-108.	0.6	232
6	A Survey of Usability Evaluation in Virtual Environments: Classification and Comparison of Methods. Presence: Teleoperators and Virtual Environments, 2002, 11, 404-424.	0.6	232
7	Formalizing the Design, Evaluation, and Application of Interaction Techniques for Immersive Virtual Environments. Journal of Visual Languages and Computing, 1999, 10, 37-53.	1.8	200
8	Effects of Field of View and Visual Complexity on Virtual Reality Training Effectiveness for a Visual Scanning Task. IEEE Transactions on Visualization and Computer Graphics, 2015, 21, 794-807.	4.4	156
9	A human motor behavior model for distal pointing tasks. International Journal of Human Computer Studies, 2010, 68, 603-615.	5.6	124
10	Testbed Evaluation of Virtual Environment Interaction Techniques. Presence: Teleoperators and Virtual Environments, 2001, 10, 75-95.	0.6	122
11	Effects of Immersion on Visual Analysis of Volume Data. IEEE Transactions on Visualization and Computer Graphics, 2012, 18, 597-606.	4.4	115
12	The Effects of Higher Levels of Immersion on Procedure Memorization Performance and Implications for Educational Virtual Environments. Presence: Teleoperators and Virtual Environments, 2010, 19, 527-543.	0.6	110
13	Maintaining Spatial Orientation during Travel in an Immersive Virtual Environment. Presence: Teleoperators and Virtual Environments, 1999, 8, 618-631.	0.6	102
14	3D User Interfaces: New Directions and Perspectives. IEEE Computer Graphics and Applications, 2008, 28, 20-36.	1.2	98
15	Studying the Effects of Stereo, Head Tracking, and Field of Regard on a Small-Scale Spatial Judgment Task. IEEE Transactions on Visualization and Computer Graphics, 2013, 19, 886-896.	4.4	98
16	The Educational Value of an Information-Rich Virtual Environment. Presence: Teleoperators and Virtual Environments, 1999, 8, 317-331.	0.6	97
17	Information-rich virtual environments. , 2003, , .		91
18	New Directions in 3D User Interfaces. The International Journal of Virtual Reality, 2019, 5, 3-14.	2.2	91

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19	Rapid and accurate 3D selection by progressive refinement. , 2011, , .		78
20	Feasibility of Training Athletes for High-Pressure Situations Using Virtual Reality. IEEE Transactions on Visualization and Computer Graphics, 2014, 20, 606-615.	4.4	77
21	Cooperative object manipulation in immersive virtual environments. , 2002, , .		75
22	The Effects of Visual Realism on Search Tasks in Mixed Reality Simulation. IEEE Transactions on Visualization and Computer Graphics, 2013, 19, 547-556.	4.4	73
23	Effects of VR System Fidelity on Analyzing Isosurface Visualization of Volume Datasets. IEEE Transactions on Visualization and Computer Graphics, 2014, 20, 513-522.	4.4	67
24	Text Input Techniques for Immersive Virtual Environments: An Empirical Comparison. Proceedings of the Human Factors and Ergonomics Society, 2002, 46, 2154-2158.	0.3	66
25	Humanâ€robot Teaming for Rescue Missions: TeamÂViGIR's Approach to the 2013 DARPAÂRoboticsÂChallengeÂTrials. Journal of Field Robotics, 2015, 32, 352-377.	6.0	60
26	Separating the effects of level of immersion and 3D interaction techniques. , 2006, , .		59
27	Simulation of Augmented Reality Systems in Purely Virtual Environments. Virtual Reality Conference (VR), Proceedings, IEEE, 2009, , .	0.0	59
28	The Simple Virtual Environment Library: An Extensible Framework for Building VE Applications. Presence: Teleoperators and Virtual Environments, 2000, 9, 187-208.	0.6	58
29	Comparing the performance of natural, semi-natural, and non-natural locomotion techniques in virtual reality. , 2015, , .		57
30	Amplified Head Rotation in Virtual Reality and the Effects on 3D Search, Training Transfer, and Spatial Orientation. IEEE Transactions on Visualization and Computer Graphics, 2017, 23, 1880-1895.	4.4	56
31	The role of latency in the validity of AR simulation. , 2010, , .		50
32	Effects of information layout, screen size, and field of view on user performance in information-rich virtual environments. , 2005, , .		49
33	A hand-held AR magic lens with user-perspective rendering. , 2012, , .		49
34	Quantifying the benefits of immersion for collaboration in virtual environments. , 2005, , .		48
35	A tool for the interactive 3D visualization of electronic structure in molecules and solids. Computers & Chemistry, 2002, 26, 313-319.	1.2	47
36	The benefits of immersion for spatial understanding of complex underground cave systems. , 2007, , .		46

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37	Design and evaluation of freehand menu selection interfaces using tilt and pinch gestures. International Journal of Human Computer Studies, 2011, 69, 551-562.	5.6	46
38	Evaluating natural interaction techniques in video games. , 2010, , .		45
39	Immersive Analytics: Theory and Research Agenda. Frontiers in Robotics and AI, 2019, 6, 82.	3.2	45
40	Supporting cognitive processing with spatial information presentations in virtual environments. Virtual Reality, 2012, 16, 301-314.	6.1	44
41	Design and evaluation of 3D selection techniques based on progressive refinement. International Journal of Human Computer Studies, 2013, 71, 785-802.	5.6	44
42	Designing animal habitats within an immersive VE. IEEE Computer Graphics and Applications, 1998, 18, 9-13.	1.2	43
43	The Virtual Venue: User-Computer Interaction in Information-Rich Virtual Environments. Presence: Teleoperators and Virtual Environments, 1998, 7, 478-493.	0.6	42
44	Empirical Comparison of Human Behavior and Performance with Different Display Devices for Virtual Environments. Proceedings of the Human Factors and Ergonomics Society, 2002, 46, 2134-2138.	0.3	41
45	Considerations for the use of commercial video games in controlled experiments. Entertainment Computing, 2011, 2, 3-9.	2.9	40
46	AirStroke. , 2011, , .		39
47	Quantifying the benefits of immersion for procedural training. , 2008, , .		38
48	The role of Depth and Gestalt cues in information-rich virtual environments. International Journal of Human Computer Studies, 2011, 69, 30-51.	5.6	38
49	Contextualized Videos: Combining Videos with Environment Models to Support Situational Understanding. IEEE Transactions on Visualization and Computer Graphics, 2007, 13, 1568-1575.	4.4	37
50	Glanceable AR: Evaluating Information Access Methods for Head-Worn Augmented Reality. , 2020, , .		36
51	Exploring Effects of Interactivity on Learning with Interactive Storytelling in Immersive Virtual Reality. , 2019, , .		35
52	Walking with adaptive augmented reality workspaces. , 2019, , .		32
53	Advantages of velocity-based scaling for distant 3D manipulation. , 2008, , .		30
54	Cooperative object manipulation in collaborative virtual environments. Journal of the Brazilian Computer Society, 2008, 14, 53-67.	1.3	29

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55	Design and display of enhancing information in desktop information-rich virtual environments: challenges and techniques. Virtual Reality, 2004, 8, 41.	6.1	28
56	Validation of the MR Simulation Approach for Evaluating the Effects of Immersion on Visual Analysis of Volume Data. IEEE Transactions on Visualization and Computer Graphics, 2013, 19, 529-538.	4.4	28
57	Evaluating the effects of orchestrated, game-based learning in virtual environments for informal education. , 2014, , .		28
58	A replication study testing the validity of AR simulation in VR for controlled experiments. , 2009, , .		27
59	Evaluating the Potential of Glanceable AR Interfaces for Authentic Everyday Uses. , 2021, , .		23
60	Effects of information layout, screen size, and field of view on user performance in information-rich virtual environments. Computer Animation and Virtual Worlds, 2007, 18, 19-38.	1.2	22
61	A Taxonomy for Designing Walking-based Locomotion Techniques for Virtual Reality. , 2016, , .		22
62	Move the Object or Move Myself? Walking vs. Manipulation for the Examination of 3D Scientific Data. Frontiers in ICT, 2018, 5, .	3.6	22
63	Pseudo-Haptic Display of Mass and Mass Distribution During Object Rotation in Virtual Reality. IEEE Transactions on Visualization and Computer Graphics, 2020, 26, 2094-2103.	4.4	22
64	Development of a Virtual Reality Structural Analysis System. Journal of Architectural Engineering, 2005, 11, 156-164.	1.6	21
65	Tech-note: rapMenu: Remote Menu Selection Using Freehand Gestural Input. , 2008, , .		21
66	Relative Effects of Real-world and Virtual-World Latency on an Augmented Reality Training Task: An AR Simulation Experiment. Frontiers in ICT, 2017, 3, .	3.6	21
67	A multiscale interaction technique for large, high-resolution displays. , 2009, , .		19
68	Body-based interaction for desktop games. , 2009, , .		18
69	Volume cracker. , 2013, , .		18
70	Experiencing an Invisible World War I Battlefield Through Narrative-Driven Redirected Walking in Virtual Reality. , 2018, , .		18
71	PathSim visualizer. , 2004, , .		17
72	Collaborative navigation in virtual search and rescue. , 2012, , .		17

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73	Mixed reality environment for learning sensing technology applications in Construction: A usability study. Advanced Engineering Informatics, 2022, 53, 101637.	8.0	16
74	Evaluating the effects of frame of reference on spatial collaboration using desktop collaborative virtual environments. Virtual Reality, 2004, 7, 164.	6.1	15
75	Evaluating the effects of real world distraction on user performance in virtual environments. , 2006, , .		15
76	Poster: Designing effective travel techniques with bare-hand interaction. , 2014, , .		15
77	Gaze Direction Visualization Techniques for Collaborative Wide-Area Model-Free Augmented Reality. , 2019, , .		15
78	Effects of Video Placement and Spatial Context Presentation on Path Reconstruction Tasks with Contextualized Videos. IEEE Transactions on Visualization and Computer Graphics, 2008, 14, 1755-1762.	4.4	14
79	Domain-Specific Design of 3D Interaction Techniques: An Approach for Designing Useful Virtual Environment Applications. Presence: Teleoperators and Virtual Environments, 2009, 18, 370-386.	0.6	14
80	Integrating 2D and 3D views for spatial collaboration. , 2005, , .		13
81	Bookshelf and Bird: Enabling Real Walking in Large VR Spaces through Cell-Based Redirection. , 2017, , .		13
82	Application of a Virtual Environment System in Building Sciences Education. Journal of Architectural Engineering, 2005, 11, 165-172.	1.6	12
83	Wayfinding techniques for multiScale virtual environments. , 2009, , .		12
84	The effects of navigational control and environmental detail on learning in 3D virtual environments. , 2012, , .		12
85	Force Push: Exploring Expressive Gesture-to-Force Mappings for Remote Object Manipulation in Virtual Reality. Frontiers in ICT, 2018, 5, .	3.6	12
86	Cooperative object manipulation in collaborative virtual environments. Journal of the Brazilian Computer Society, 2008, 14, 54-67.	1.3	12
87	Resizing beyond widgets. , 2005, , .		11
88	3D User Interfaces. IEEE Computer Graphics and Applications, 2009, 29, 20-21.	1.2	11
89	How spatial layout, interactivity, and persistent visibility affect learning with large displays. , 2012, , .		11
90	CI-Spy: Designing A Mobile Augmented Reality System for Scaffolding Historical Inquiry Learning. , 2015, , .		11

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91	Small group learning with games in museums. , 2015, , .		11
92	Towards a system for reusable 3D interaction techniques. , 2007, , .		10
93	A natural, tiered and executable UIDL for 3D user interfaces based on Concept-Oriented Design. ACM Transactions on Computer-Human Interaction, 2009, 16, 1-36.	5.7	10
94	User experience with semi-natural locomotion techniques in virtual reality. , 2017, , .		10
95	A classification of user tasks in visual analysis of volume data. , 2015, , .		9
96	Audience Involvement and Agency in Digital Games. , 2016, , .		9
97	Supporting Social Engagement for Young Audiences with Serious Games and Virtual Environments in Museums. Springer Series on Cultural Computing, 2018, , 19-43.	0.6	9
98	Examining the equivalence of simulated and real AR on a visual following and identification task. , 2012, , .		8
99	Overview of team ViGIR's approach to the Virtual Robotics Challenge. , 2013, , .		8
100	Enhanced Geometric Techniques for Point Marking in Model-Free Augmented Reality. , 2019, , .		8
101	Evaluating the effects of tracker reliability and field of view on a target following task in augmented reality. , 2009, , .		7
102	Validating the Benefits of Glanceable and Context-Aware Augmented Reality for Everyday Information Access Tasks. , 2022, , .		7
103	Supporting Distributed Spatial Collaboration: An Investigation of Navigation and Radar View Techniques. GeoInformatica, 2006, 10, 123-158.	2.7	6
104	Tiered Developer-Centric Representations for 3D Interfaces: Concept-Oriented Design in Chasm. , 2008, , .		6
105	The effects of virtual character animation on spatial judgments. , 2012, , .		6
106	Comparing the performance of natural, semi-natural, and non-natural locomotion techniques in virtual reality. , 2015, , .		6
107	Effect of Volumetric Displays on Depth Perception in Augmented Reality. , 2018, , .		6
108	Occlusion Management Techniques for Everyday Glanceable AR Interfaces. , 2020, , .		6

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109	Clean the Ocean: An Immersive VR Experience Proposing New Modifications to Go-Go and WiM Techniques. , 2022, , .		6
110	An Empirical Comparison of Task Sequences for Immersive Virtual Environments. , 2007, , .		5
111	3DUI 2010 Contest Grand Prize Winners. IEEE Computer Graphics and Applications, 2010, 30, 86-96, c3.	1.2	4
112	Embracing Physical Keyboards for Virtual Reality. Computer, 2020, 53, 9-10.	1.1	4
113	Map-based navigation in a graphical MOO. Xrds, 2002, 9, 8-15.	0.3	3
114	The effects of spatial layout and view control on cognitive processing. , 2011, , .		3
115	Design and evaluation of a visual acclimation aid for a semi-natural locomotion device. , 2015, , .		3
116	Interval Player: Designing a virtual musical instrument using in-air gestures. , 2015, , .		3
117	Toolsets for the Development of Highly Interactive and Information-Rich Environments. The International Journal of Virtual Reality, 2019, 3, 1-19.	2.2	3
118	Designing Historical Tours for Head-Worn AR. , 2021, , .		3
119	Poster: A hybrid direct visual editing method for architectural massing study in virtual environments. , 2009, , .		2
120	Design issues when using commodity gaming devices for virtual object manipulation. , 2012, , .		2
121	Poster: Volume Cracker: A bimanual 3D interaction technique for analysis of raw volumetric data. , 2013, , .		2
122	[Poster] CI-Spy: Using mobile-AR for scaffolding historical inquiry learning. , 2014, , .		2
123	C-OLiVE: Group co-located interaction in VEs for contextual learning. , 2014, , .		2
124	Bare-Hand Volume Cracker for Raw Volume Data Analysis. Frontiers in Robotics and AI, 2016, 3, .	3.2	2
125	Designing capsule, an input device to support the manipulation of biological datasets. , 2016, , .		2
126	A gaming interface using body gestures for collaborative navigation. , 2012, , .		1

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127	Poster: 3D sketching and flexible input for surface design: A case study. , 2013, , .		1
128	Hose task at the 2013 DARPA Robotics Challenge trials: Team ViGIR's results video. , 2014, , .		1
129	Message from the Paper Chairs and Guest Editors. IEEE Transactions on Visualization and Computer Graphics, 2014, 20, vi-vi.	4.4	1
130	Evaluation of Environment-Independent Techniques for 3D Position Marking in Augmented Reality. , 2018, , .		1
131	Save the Space Elevator: An Escape Room Scenario Involving Passive Haptics in Mixed Reality. , 2019, , .		1
132	Enhanced Geometric Techniques for Point Marking in Model-Free Augmented Reality. , 2019, , .		1
133	Glanceable AR: Evaluating Information Access Methods for Head-Worn Augmented Reality. , 2020, , .		1
134	Introducing the IEEE Virtual Reality 2020 Special Issue. IEEE Transactions on Visualization and Computer Graphics, 2020, 26, iv-v.	4.4	1
135	ARCritique: Supporting Remote Design Critique of Physical Artifacts through Collaborative Augmented Reality. , 2021, , .		1
136	Designing immersive virtual reality stories with rich characters and high interactivity to promote learning of complex immunology concepts. , 2021, , .		1
137	Displays and Interaction for Virtual Travel. , 2013, , 147-175.		1
138	An Adaptive Interface for Spatial Augmented Reality Workspaces. , 2019, , .		1
139	Exploring Effect of Level of Storytelling Richness on Science Learning in Interactive and Immersive Virtual Reality. , 2022, , .		1
140	Guest Editors' Introduction: Special Section on Virtual Reality. IEEE Transactions on Visualization and Computer Graphics, 2007, 13, 420-421.	4.4	0
141	Building blocks: A novel metaphor for solving 3D puzzles. , 2011, , .		0
142	Effects of navigation design on Contextualized Video Interfaces. , 2011, , .		0
143	Poster: Design considerations for fabric-based input for surface design. , 2012, , .		0
144	Effects of field of regard and stereoscopy and the validity of MR simulation for visual analysis of scientific data. , 2016, , .		0

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145	Climb, Direct, Stack: Smart Interfaces for ELeague Contest. , 2018, , .		0
146	Force Push: Exploring Expressive Gesture-to-Force Mappings for Indirect 3D Object Manipulation. , 2018, , .		0
147	"Pump that press!". , 2018, , .		0
148	Message from the Editor-in-Chief and from the Associate Editor-in-Chief. IEEE Transactions on Visualization and Computer Graphics, 2019, 25, 3049-3049.	4.4	0
149	Message from the Editor-in-Chief and from the Associate Editor-in-Chief. IEEE Transactions on Visualization and Computer Graphics, 2020, 26, 3386-3386.	4.4	0
150	Get the job! An immersive simulation of sensory overload. , 2020, , .		0
151	Virtual Loupes: An Augmented Reality Aid for Microsurgery. , 2021, , .		0
152	Message from the Editor-in-Chief and from the Associate Editor-in-Chief. IEEE Transactions on Visualization and Computer Graphics, 2021, 27, 4085-4085.	4.4	0
153	IEEE VR 2022 Introducing the Special Issue. IEEE Transactions on Visualization and Computer Graphics, 2022, 28, vi-vi.	4.4	0
154	BuildAR: A Proof-of-Concept Prototype of Intelligent Augmented Reality in Construction. , 2022, , .		0