

# Stephane M Cotin

## List of Publications by Year in descending order

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107  
papers

4,170  
citations

172207

29  
h-index

128067

60  
g-index

110  
all docs

110  
docs citations

110  
times ranked

2708  
citing authors

#	ARTICLE	IF	CITATIONS
1	Real-time elastic deformations of soft tissues for surgery simulation. IEEE Transactions on Visualization and Computer Graphics, 1999, 5, 62-73.	2.9	563
2	Real-time Volumetric Deformable Models for Surgery Simulation using Finite Elements and Condensation. Computer Graphics Forum, 1996, 15, 57-66.	1.8	376
3	A hybrid elastic model for real-time cutting, deformations, and force feedback for surgery training and simulation. Visual Computer, 2000, 16, 437-452.	2.5	363
4	Virtual Reality Applied to Hepatic Surgery Simulation: The Next Revolution. Annals of Surgery, 1998, 228, 627-634.	2.1	230
5	SOFA: A Multi-Model Framework for Interactive Physical Simulation. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2012, , 283-321.	0.7	223
6	GPU-based real-time soft tissue deformation with cutting and haptic feedback. Progress in Biophysics and Molecular Biology, 2010, 103, 159-168.	1.4	131
7	Real-time simulation of contact and cutting of heterogeneous soft-tissues. Medical Image Analysis, 2014, 18, 394-410.	7.0	131
8	Truth cube: Establishing physical standards for soft tissue simulation. Medical Image Analysis, 2003, 7, 283-291.	7.0	123
9	Designing a computer-based simulator for interventional cardiology training. Catheterization and Cardiovascular Interventions, 2000, 51, 522-527.	0.7	111
10	Patient-Specific Biomechanical Modeling for Guidance During Minimally-Invasive Hepatic Surgery. Annals of Biomedical Engineering, 2016, 44, 139-153.	1.3	94
11	Image-guided simulation of heterogeneous tissue deformation for augmented reality during hepatic surgery. , 2013, , .		93
12	A Fully Three-Dimensional Method for Facial Reconstruction Based on Deformable Models. Journal of Forensic Sciences, 1997, 42, 649-652.	0.9	86
13	Interactive physically-based simulation of catheter and guidewire. Computers and Graphics, 2006, 30, 416-422.	1.4	80
14	Computer-enhanced laparoscopic training system (CELTS): bridging the gap. Surgical Endoscopy and Other Interventional Techniques, 2004, 18, 782-9.	1.3	69
15	Metrics for Laparoscopic Skills Trainers: The Weakest Link!. Lecture Notes in Computer Science, 2002, , 35-43.	1.0	68
16	Constraint-Based Haptic Rendering of Multirate Compliant Mechanisms. IEEE Transactions on Haptics, 2011, 4, 175-187.	1.8	54
17	Impact of Soft Tissue Heterogeneity on Augmented Reality for Liver Surgery. IEEE Transactions on Visualization and Computer Graphics, 2015, 21, 584-597.	2.9	52
18	Real-Time Error Control for Surgical Simulation. IEEE Transactions on Biomedical Engineering, 2018, 65, 596-607.	2.5	52

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19	Segmentation and reconstruction of vascular structures for 3D real-time simulation. Medical Image Analysis, 2011, 15, 22-34.	7.0	49
20	Robust augmented reality registration method for localization of solid organs'™ tumors using CT-derived virtual biomechanical model and fluorescent fiducials. Surgical Endoscopy and Other Interventional Techniques, 2017, 31, 2863-2871.	1.3	49
21	Vision-Based Force Feedback Estimation for Robot-Assisted Surgery Using Instrument-Constrained Biomechanical Three-Dimensional Maps. IEEE Robotics and Automation Letters, 2018, 3, 2160-2165.	3.3	48
22	Real time volumetric deformable models for surgery simulation. Lecture Notes in Computer Science, 1996, , 535-540.	1.0	45
23	Augmented Reality during Open Liver Surgery Using a Markerless Non-rigid Registration System. Journal of Gastrointestinal Surgery, 2021, 25, 662-671.	0.9	45
24	Efficient Nonlinear FEM for Soft Tissue Modelling and Its GPU Implementation within the Open Source Framework SOFA. Lecture Notes in Computer Science, 2008, , 28-39.	1.0	45
25	Hysteroscopic placement of tubal sterilization implants: virtual reality simulator training. Surgical Endoscopy and Other Interventional Techniques, 2012, 26, 1986-1996.	1.3	42
26	Fast elastic registration of soft tissues under large deformations. Medical Image Analysis, 2018, 45, 24-40.	7.0	41
27	A Combined Force and Thermal Feedback Interface for Minimally Invasive Procedures Simulation. IEEE/ASME Transactions on Mechatronics, 2013, 18, 1170-1181.	3.7	36
28	Virtual cutting of deformable objects based on efficient topological operations. Visual Computer, 2015, 31, 831-841.	2.5	35
29	Modeling and Real-Time Simulation of a Vascularized Liver Tissue. Lecture Notes in Computer Science, 2012, 15, 50-57.	1.0	32
30	Interactive Simulation of Flexible Needle Insertions Based on Constraint Models. Lecture Notes in Computer Science, 2009, 12, 291-299.	1.0	32
31	Single view augmentation of 3D elastic objects. , 2014, , .		31
32	Preoperative trajectory planning for percutaneous procedures in deformable environments. Computerized Medical Imaging and Graphics, 2016, 47, 16-28.	3.5	29
33	Controlling the error on target motion through real-time mesh adaptation: Applications to deep brain stimulation. International Journal for Numerical Methods in Biomedical Engineering, 2018, 34, e2958.	1.0	29
34	Interactive Simulation of Embolization Coils: Modeling and Experimental Validation. Lecture Notes in Computer Science, 2008, 11, 695-702.	1.0	27
35	Contact Model for Haptic Medical Simulations. Lecture Notes in Computer Science, 2008, , 157-165.	1.0	26
36	Blood vessel modeling for interactive simulation of interventional neuroradiology procedures. Medical Image Analysis, 2017, 35, 685-698.	7.0	25

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37	Towards an interactive electromechanical model of the heart. <i>Interface Focus</i> , 2013, 3, 20120091.	1.5	24
38	Simulation of endoscopic surgery. <i>Minimally Invasive Therapy and Allied Technologies</i> , 1998, 7, 71-77.	0.6	22
39	A Segmentation and Reconstruction Technique for 3D Vascular Structures. <i>Lecture Notes in Computer Science</i> , 2005, 8, 43-50.	1.0	21
40	Physics-Based Deep Neural Network for Augmented Reality During Liver Surgery. <i>Lecture Notes in Computer Science</i> , 2019, , 137-145.	1.0	21
41	Real-Time Modeling of Vascular Flow for Angiography Simulation. , 2007, 10, 557-565.		19
42	Monocular 3D Reconstruction and Augmentation of Elastic Surfaces with Self-Occlusion Handling. <i>IEEE Transactions on Visualization and Computer Graphics</i> , 2015, 21, 1363-1376.	2.9	19
43	Using contours as boundary conditions for elastic registration during minimally invasive hepatic surgery. , 2016, , .		18
44	Interactive training system for interventional electrocardiology procedures. <i>Medical Image Analysis</i> , 2017, 35, 225-237.	7.0	18
45	B-spline Based Multi-organ Detection in Magnetic Resonance Imaging. <i>Strain</i> , 2015, 51, 235-247.	1.4	17
46	Silhouette-based pose estimation for deformable organs application to surgical augmented reality. , 2017, , .		17
47	Marker-Based Registration for Large Deformations - Application to Open Liver Surgery. , 2018, , .		17
48	Biomechanical Simulation of Electrode Migration for Deep Brain Stimulation. <i>Lecture Notes in Computer Science</i> , 2011, 14, 339-346.	1.0	16
49	Design principles for the use of simulation as an aid in interventional cardiology training. <i>Minimally Invasive Therapy and Allied Technologies</i> , 2001, 10, 75-82.	0.6	15
50	Handling topological changes during elastic registration. <i>International Journal of Computer Assisted Radiology and Surgery</i> , 2017, 12, 461-470.	1.7	15
51	Model-Based Identification of Anatomical Boundary Conditions in Living Tissues. <i>Lecture Notes in Computer Science</i> , 2014, , 196-205.	1.0	15
52	Capturing Deformations of Interacting Non-rigid Objects Using RGB-D Data. , 2018, , .		14
53	Interactive blood-coil simulation in real-time during aneurysm embolization. <i>Computers and Graphics</i> , 2011, 35, 422-430.	1.4	13
54	Anticipation of brain shift in Deep Brain Stimulation automatic planning. , 2015, 2015, 3635-8.		13

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55	Estimation of boundary conditions for patient-specific liver simulation during augmented surgery. International Journal of Computer Assisted Radiology and Surgery, 2020, 15, 1107-1115.	1.7	13
56	Middle-Ear Microsurgery Simulation to Improve New Robotic Procedures. BioMed Research International, 2014, 2014, 1-10.	0.9	12
57	Towards an accurate tracking of liver tumors for augmented reality in robotic assisted surgery. , 2014, , .		12
58	Augmented Reality during Cutting and Tearing of Deformable Objects. , 2015, , .		12
59	Validation Method of a Middle Ear Mechanical Model to Develop a Surgical Simulator. Audiology and Neuro-Otology, 2014, 19, 73-84.	0.6	11
60	Towards a Framework for Assessing Deformable Models in Medical Simulation. Lecture Notes in Computer Science, 2008, , 176-184.	1.0	11
61	Physics-Based Deep Neural Network for Real-Time Lesion Tracking in Ultrasound-Guided Breast Biopsy. , 2020, , 33-45.		10
62	Atlas-Based Transfer of Boundary Conditions for Biomechanical Simulation. Lecture Notes in Computer Science, 2014, 17, 33-40.	1.0	10
63	Towards Interactive Planning of Coil Embolization in Brain Aneurysms. Lecture Notes in Computer Science, 2009, 12, 377-385.	1.0	10
64	A Shell Model for Real-Time Simulation of Intra-ocular Implant Deployment. Lecture Notes in Computer Science, 2010, , 160-170.	1.0	9
65	Preconditioner-Based Contact Response and Application to Cataract Surgery. Lecture Notes in Computer Science, 2011, 14, 315-322.	1.0	9
66	Robust RANSAC-based blood vessel segmentation. , 2012, , .		8
67	Computer-based training system for cataract surgery. Simulation, 2013, 89, 1421-1435.	1.1	8
68	Framework for augmented reality in Minimally Invasive laparoscopic surgery. , 2015, , .		8
69	Constrained stochastic state estimation of deformable 1D objects: Application to single-view 3D reconstruction of catheters with radio-opaque markers. Computerized Medical Imaging and Graphics, 2020, 81, 101702.	3.5	8
70	Haptic rendering of interacting dynamic deformable objects simulated in real-time at different frequencies. , 2013, , .		7
71	Data-Driven Simulation for Augmented Surgery. Advanced Structured Materials, 2020, , 71-96.	0.3	7
72	The Role of Ligaments: Patient-Specific or Scenario-Specific?. Lecture Notes in Computer Science, 2014, , 228-232.	1.0	7

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73	Automatic Alignment of Pre and Intraoperative Data Using Anatomical Landmarks for Augmented Laparoscopic Liver Surgery. Lecture Notes in Computer Science, 2014, , 58-66.	1.0	7
74	Image-Driven Stochastic Identification of Boundary Conditions for Predictive Simulation. Lecture Notes in Computer Science, 2017, , 548-556.	1.0	7
75	Deformation Aware Augmented Reality for Craniotomy Using 3D/2D Non-rigid Registration of Cortical Vessels. Lecture Notes in Computer Science, 2020, 12264, 735-744.	1.0	7
76	Interactive Contacts Resolution Using Smooth Surface Representation. , 2007, 10, 850-857.		7
77	Asynchronous haptic simulation of contacting deformable objects with variable stiffness. , 2011, , .		6
78	Modelling Prostate Deformation: SOFA versus Experiments. Mechanical Engineering Research, 2013, 3, .	0.2	6
79	Calipso: physics-based image and video editing through CAD model proxies. Visual Computer, 2020, 36, 211-226.	2.5	6
80	Intra-operative Update of Boundary Conditions for Patient-Specific Surgical Simulation. Lecture Notes in Computer Science, 2021, , 373-382.	1.0	6
81	Towards a Better Understanding of Pelvic System Disorders Using Numerical Simulation. Lecture Notes in Computer Science, 2013, 16, 307-314.	1.0	6
82	Elastic Registration Based on Compliance Analysis and Biomechanical Graph Matching. Annals of Biomedical Engineering, 2020, 48, 447-462.	1.3	5
83	Interactive Training System for Interventional Electrophysiology Procedures. Lecture Notes in Computer Science, 2014, , 11-19.	1.0	5
84	Improving depth perception during surgical augmented reality. , 2015, , .		4
85	Segmentation and labelling of intra-operative laparoscopic images using structure from point cloud. , 2016, , .		4
86	Surgical Augmented Reality with Topological Changes. Lecture Notes in Computer Science, 2015, , 413-420.	1.0	4
87	Toward Real-Time Simulation of Blood-Coil Interaction during Aneurysm Embolization. Lecture Notes in Computer Science, 2009, 12, 198-205.	1.0	4
88	<title>CAML: a general framework for the development of medical simulation systems</title>. , 2000, 4037, 294.		3
89	Biomechanics-based graph matching for augmented CT-CBCT. International Journal of Computer Assisted Radiology and Surgery, 2018, 13, 805-813.	1.7	3
90	Intra-Operative Registration for Stereotactic Procedures Driven by a Combined Biomechanical Brain and CSF Model. Lecture Notes in Computer Science, 2014, , 76-85.	1.0	3

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91	The Effect of Discretization on Parameter Identification. Application to Patient-Specific Simulations. Lecture Notes in Computational Vision and Biomechanics, 2020, , 237-247.	0.5	3
92	Alignment of cortical vessels viewed through the surgical microscope with preoperative imaging to compensate for brain shift. , 2020, 11315, .		3
93	GPU-Based Interactive Simulation of Liver Resection. , 2011, , .		2
94	Simultaneous Pose Estimation and Augmentation of Elastic Surfaces from a Moving Monocular Camera. , 2016, , .		2
95	Face-based smoothed finite element method for real-time simulation of soft tissue. Proceedings of SPIE, 2017, , .	0.8	2
96	High Fidelity Haptic Rendering for Deformable Objects Undergoing Topology Changes. Lecture Notes in Computer Science, 2010, , 262-268.	1.0	2
97	Simulation of Lipofilling Reconstructive Surgery Using Coupled Eulerian Fluid and Deformable Solid Models. Lecture Notes in Computer Science, 2013, 16, 299-306.	1.0	1
98	Augmented reality for cryoablation procedures. , 2015, , .		1
99	Designing a computer-based simulator for interventional cardiology training. Catheterization and Cardiovascular Interventions, 2000, 51, 522-527.	0.7	1
100	Shell Model for Reconstruction and Real-Time Simulation of Thin Anatomical Structures. Lecture Notes in Computer Science, 2010, 13, 371-379.	1.0	1
101	Registration of a Validated Mechanical Atlas of Middle Ear for Surgical Simulation. Lecture Notes in Computer Science, 2013, 16, 331-338.	1.0	1
102	Haptic Rendering on Deformable Anatomical Tissues with Strong Heterogeneities. Lecture Notes in Computer Science, 2014, , 223-231.	1.0	1
103	Information processing in computer-assisted interventions: 4th international conference, 2013. International Journal of Computer Assisted Radiology and Surgery, 2014, 9, 755-757.	1.7	0
104	Fracture in augmented reality. , 2015, , .		0
105	Testbed for Assessing the Accuracy of Interventional Radiology Simulations. Lecture Notes in Computer Science, 2014, , 106-111.	1.0	0
106	An Immersed Boundary Method for Detail-Preserving Soft Tissue Simulation from Medical Images. , 2019, , 55-67.		0
107	Collaborative Development of an open framework for medical simulation. The Insight Journal, 2005, , .	0.2	0