

7p202-33
2000
VIA

Proceedings

I 2000 C R A

IEEE International Conference on Robotics and Automation

**April 24 – 28, 2000
San Francisco Hilton Hotel
San Francisco, California**

Sponsored by
IEEE Robotics and Automation Society

Volume 1

Pages 1-970



E200000979

ICRA 2000 PROCEEDINGS

Additional copies may be ordered from:

IEEE Service Center
445 Hoes Lane
P.O. Box 1331
Piscataway, NJ 08855-1331 U.S.A.

IEEE Catalog Number 00CH37065
ISBN 0-7803-5886-4 (Softbound)
ISBN 0-7803-5887-2 (Casebound)
ISBN 0-7803-5888-0 (Microfiche)
Library of Congress Catalog Number 90-640158
ISSN 1050-4729
IEEE Catalog Number (CD-ROM): 00CH37065C
ISBN 0-7803-5889-9 (CD-ROM)

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Printed in the United States of America by OMNIPRESS.....The Proceedings Printer.

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Foreword

The 2000 IEEE International Conference on Robotics and Automation, ICRA2000, held in San Francisco April 24-28, 2000, is the 17th in a series of annual conferences sponsored by the IEEE Robotics & Automation Society.

During the 20th century, the body of concepts, methods, and systems that we refer to as "Robotics and Automation" emerged as a major field. While its origins can be traced to the industrial revolution that began more than 150 years ago, it continues to evolve today. Now, at the dawn of the new millennium, robotics is undergoing a major transformation in scope and dimension. From a largely dominant industrial focus, robotics is rapidly expanding into the challenges of unstructured environments. Interacting with, assisting, serving, and exploring with humans, the emerging robots will increasingly touch people and their lives. These advances in intelligent machines will impact a wide range of areas in manufacturing, space, underwater, services, health care, entertainment, design, and automation, among others. The emphasis on these new frontiers is reflected in the theme for the 2000 Conference, Robotics and Automation: The Next Generation. The 2000 Conference provides a unique opportunity for researchers and engineers in our community to reflect on the field's accomplishments, new developments, and future directions.

Our goal for ICRA2000 was to develop a technical program with the highest quality in content and organization. In planning the conference, a special effort was made to create a conference structure that is conducive to quality interactions between participants. The structure, which is reflected in these Proceedings, provides for a reduced number of parallel tracks and includes, in addition to the regular tracks, a series of theme-oriented symposia. Organized by leading researchers in their respective fields, these symposia serve to present summaries of many of the sub-disciplines that comprise the field of robotics and automation. The 28 symposium sessions cover topics ranging from the field's foundations to the emerging applications of robotics and manufacturing automation.

The entire ICRA2000 Program consists of 111 technical sessions for a total of 641 papers chosen from the nearly 1100 submissions. The 641 selected papers, as a whole, stress the conference theme, which is further highlighted by four keynote presentations and two plenary sessions. The four keynote presentations are: "Vision – Enabling Robots to Sense, Control and Interact," by Takeo Kanade; "Controlling Intelligent Machines," by Hendrik Van Brussel; "Motion Planning: A Journey of Robots, Molecules, Digital Actors, and Other Artifacts," by Jean-Claude Latombe; and "Hands On: Haptics and Telesurgery," by Kenneth Salisbury. Organized by Georges Giralt, the two plenary sessions are entitled "Robotics: the 20th Century and Beyond" and "National and International R&D Projects and Programs." The Banquet address is given by Stephen Jacobsen. The program also includes a panel on Education, two video sessions, five tutorials, and nine workshops.

We would like to express our appreciation and thanks to all the members of the Organizing Committee, Technical Program Committee and Video Proceedings Committee for their efforts and contributions to the program and organization of this conference. Our special thanks go to the volunteers and staff for the long hours and hard work they have generously given to the conference. But above all, ICRA2000 is the result of the contributions of its authors. We would like to thank all the authors, speakers, participants, and organizers for taking part in and contributing to ICRA2000.

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Author Index

Abolmaesumi, P.	789, 1580	Ascher, Uri M.	857
Acar, Ercan	2270, 3803	Astley, Oliver R.	2446
Adam, Amit	2993	Atkeson, Christopher G.	288, 2223
Adamović, N.	3647	Au, Kwok Wai	2925
Adams, Richard J.	770	Auer, L. M.	4103
Aghili, F.	3603	Auriol, E.	2422
Agrawal, Sunil K.	1207, 3976	Austin, David J.	1036, 2518, 2531, 3028
Agterhuis, E.	4103	Avello, A.	2690
Ahmadi, M.	2938	Ayache, Nicholas	596, 864
Aiyama, Yasumichi	3176	Aycard, Olivier	1163
Akeel, Hadi A.	696	Ayrulu, Birsal	3745
Akella, Srinivas	147	Azinhaira, José Raul	1269
Akin, David L.	1188	Bachmann, Eric R.	1781
Akita, Junichi	807	Bachmann, S.	1580
Alami, R.	88, 2716	Backes, Paul G.	2025
Albro, J. V.	3958	Baerlocher, P.	2557
Albus, James S.	3260	Bai, Shaoping	2605
Aldon, M.-J.	3197	Baiker, Stefan	3817
Ali, Khaled S.	2025	Bailey, T.	2512
Allen, Peter K.	1435, 2094, 3266	Bailey, Tim	1009
Allotta, Benedetto	1830, 3784	Bajd, T.	2907
Altafini, Claudio	1876	Balakirsky, Stephen	1201
Althoefer, Kaspar	1912	Balaniuk, Remis	2452
alYahmadi, Amer S.	3296	Balaran, J. (Bob)	926, 2597
Amato, Nancy M.	529, 3505	Balch, Tucker	73
Ambela, Despina	1862	Balduzzi, F.	2647
Ames, A. L.	3095	Balkcom, Devin J.	2479, 2499
Anderson, Frank C.	676	Balluchi, Andrea	2473
Anderson, Robert J.	2000	Baltes, H.	1101
Andersson, Magnus	2518, 2531	Baratoff, Gregory	1453
Andreff, Nicolas	2070, 2100	Barnes, Aaron	610
Andriot, C.	2677	Barshan, Billur	3745
Angeles, Jorge	2370, 2551	Barth, M.	3132, 3757
Anshelevich, Elliot	2290	Batista, Jorge	3209
Antonelli, Gianluca	1251	Baur, Charles	2007
Arai, Fumihito	192, 947, 1955, 3939	Bautista, Joaquin	2404
Arai, Hirohiko	3346, 4063	Bayard, David S.	1182
Arai, Tamio	1144, 3144, 3176	Bayazit, O. Burchan	529
Arai, Tatsuo	2217	Beard, Randal W.	1824, 2728
Arambel, Pablo	4033	Beer, Randall D.	1109
Araujo, E. G.	3823	Behmaram-Mosavat, Fareed	663
Araújo, Helder	3209	Bekey, George A.	2958, 2985
Arcara, P.	3443	Benhabib, B.	2847
Archibald, James K.	2052	Benítez, Maria del C. Amézquita	3727
Arikawa, Keisuke	33	Benjaafar, Saifallah	501
Arimoto, Suguru	227, 3867	Beraldin, A. B.	111
Arisumi, Hitoshi	1961	Bergerman, Marcel	335
Arsenio, Artur M.	1888	Berkelman, Peter	610
Arslan, Suat	1781	Berkemeier, M.	2815
Asada, H. Harry	556, 577, 736, 2466, 3422	Bernabeu, Enrique J.	2278
Asada, Minoru	795, 820, 2076	Bernardo, Enrico Di	2665
Asama, Hajime	464, 1213, 3144, 3176	Berns, K.	1701
Asano, Fumihiko	3057	Berretty, Robert-Paul	139

Bertram E. Shi	1676	Bruzzone, G.	1799
Bevly, David M.	4009	Bu, Funping	3034
Bhagavat, Milind	2179	Budenske, John R.	501
Bhattacharya, Binay	3727	Buehler, Martin	444, 2589, 3046
Bhattacharya, R.	1151	Bueno, Samuel Siqueira	1269
Bhattacharya, Shourov	1207	Bui, Steve	2019
Bianco, Giovanni	3778	Burdick, Joel W.	170, 420, 428, 1599
Bicchi, Antonio	282, 348, 2473, 2771	Burgar, C. G.	1372
Bierwirth, T.	744	Burgard, Wolfram	321, 476
Bijoy K. Ghosh	2538	Burkert, T.	3132
Birch, Matthew C.	1109	Buss, Martin	276
Birk, Andreas	795	Butler, Zack J.	2722
Birkhimer, Craig E.	3597	Butterfab, J.	46
Bishop, Bradley E.	2358	Caccavale, Fabrizio	3873
Bitó, J. F.	3531	Caccia, M.	1799
Bizdoaca, Nicu	3170	Caldwell, Darwin G.	3641
Blaer, P.	3266	Callaghan, Victor	3233
Blais, F.	111	Cameron, Stephen	3713
Bleuler, Hannes	959	Campos, J.	1289
Blin, D.	2883	Cannon, David	1948
Blind, Sebastien J.	147	Canny, John	2428
Bloomenthal, Mark	212	Carignan, Craig R.	1188
Bobrow, J. E.	3958	Carlisle, Brian	701
Bohlin, Robert	521	Carmichael, Owen	891
Böhringer, K.-F.	1101	Carrozza, M. C.	1586
Bojinov, Hristo	1734	Carvalho, José Reginaldo H.	335
Bonchis, A.	3543	Casal, Arancha	1734
Bonitz, Robert G.	2025	Casals, A.	4070
Bonney, Jordan C.	501	Caselli, Stefano	1002
Book, Wayne	835, 1465	Caudill, Reggie	395, 2197
Borenstein, Johann	2064, 2505	Causey, Greg C.	154
Borges, G. A.	3197	Çavuşoğlu, Murat Cenk	2458
Borgstadt, Justin A.	3189	Ceccarelli, Marco	1976, 2551
Borovac, B.	3647	Cecconello, Flavio	4027
Botelho, S. C.	2716	Celinski, Tomasz	1645, 3835
Boudet, Sylvie	3183	Ceres, R.	3654
Boulanger, P.	111	Chalfant, Gene	2665
Boulic, R.	2557	Chambers, T.	1132
Bourque, Eric	2310	Chang, Kyong-Sok	470, 850
Bouvet, D.	2525, 3499	Chatila, Raja	88
Bouzouia, B.	2416	Chau, I.	2440
Bowling, Alan	3970	Chaumette, François	630, 1720, 2741, 2759, 3183
Boyan, Justin A.	4095	Chavanon, O.	2883
Bozma, H. Işıl	1076	Chen, Billy	2019
Bradley, Albert M.	1787	Chen, Haoxun	389
Branicky, Michael S.	154	Chen, J. R.	1402
Braziunas, Darius	1428	Chen, Jyh-Horng	3403
Brega, R.	1930	Chen, Michael L.	1651
Breguet, Jean-Marc	959	Chen, Shih-Feng	1283
Briggs, Amy J.	1428	Chen, Tse Min	2118
Brock, Oliver	550	Chen, X. Q.	1557
Brockett, Roger W.	508	Chen, Y.-C.	2575
Bruce, Allison	4002	Chen, Yifan	1157
Brunner, B.	898	Chen, Yixin	1936
Brussel, H. Van	3707	Cheng, Fan-Tien	2203
Brunyninckx, H.	13, 2563	Cheng, Gordon	2235

Cheng, Mei-Chu	1127	D'Souza, T.	1132
Chengqing, Liu	983	Dai, Wenrui	1563
Chenut, X.	241	Danner, Tim	971
Cheong, Joono	1478	Darabi, Houshang	4115
Chesi, G.	2753	Dario, P.	1586
Chevallereau, C.	3340, 3365	Dariush, Behzad	2340, 4015
Chew, Chee-Meng	3989	Darling, R. B.	1101
Chiang, Chun-Ying	1378	Das, Hari	2296
Chiang, K. H.	1509	Davies, B.	4103
Chiaverini, Stefano	3873	Dawson, D. M.	3628
Chiba, Ryousuke	1144	Deans, Matthew C.	1042
Chirikjian, Gregory S.	977	Debus, Thomas	3428
Chirn, Jin-Lung	3701	Dedeoglu, Göksel	2302
Cho, Hyun Chul	3353	DeGabriel, J. G.	2901
Cho, Y. J.	1775	Dégoulange, Eric	1615
Choi, H. R.	1525	Delahoche, Laurent	1219
Choi, Sangeun	1551	DeLaurentis, Kathryn	3077
Chong, Nak Young	3138	Delingette, Hervé	596, 864
Choset, Howie	2270, 3666, 3803	Derrien, Steven	3931
Choudhury, Prasun	354	Dickinson, M. H.	1509
Chow, Y. H.	2316	Dillmann, R.	1701, 1862
Christensen, Henrik I.	1663, 3278	Dima, Cristian	1428
Chung, Chi Youn	3952	DiMaio, S. P.	789, 2440
Chung, G. B.	1775	Ding, Dan	3573, 3579
Chung, Hakyoung	2064	Dissanayake, Gamini	1009, 1793
Chung, Ronald	2316	Dixon, W. E.	3628
Chung, Wan Kyun	2802, 4051	Dodds, Zachary	636
Chung, Wankyun	1478, 1714, 2376, 3945	Doh, Nakju	2802
Chung, Woojin	247	Dombre, Etienne	1615
Cipolla, R.	2753	Donald, Bruce	450, 1101, 3435, 3485
Clavel, Reymond	959	Dong, Wenjie	3455
Clerentin, Arnaud	1219	Doulgeri, Z.	3867
Cohen, Avis H.	494	Drennan, Barry	1109
Cohen, Elaine	212	Duarte, Fernando B. M.	4109
Colgate, J. Edward	2434	Dubowsky, Steven	570, 1545, 1969, 3609, 4009
Collani, Yorck von	3221	Duckett, Tom	3841
Colley, Martin	3233	Dudek, Gregory	1030, 2310, 3164
Colom, J. M.	2853	Duff, David G.	514
Company, Ramón	2404	Duff, Elliot S.	3790
Constantinescu, D.	2440	Dulęba, Ignacy	1302, 1836
Conticelli, F.	2771	Dummer, R.	2815
Conticelli, Fabio	1830, 3784	Dupont, Pierre	3428
Coquillart, S.	3733	Durna, Mehmet	1748
Corke, Peter I.	622, 3790	Durrant-Whyte, Hugh	920, 1009, 1793, 2512, 3543
Cormier, Marie-Helene	1787	Dvorak, Mark	501
Coste-Manière, Ève	67	Eberst, C.	3132, 3757
Cox, Daniel	3320	Edgerton, V. R.	2889
Crowder, R. M.	2422	Efe, M. Onder	1882
Cufi, X.	4070	Egerstedt, M.	3473, 3479
Cui, Yong	1263	Ehrenmann, Markus	1862
Culver, Tim	2931	Elfes, Alberto	335
Cunningham, Jock	3790	Elhajj, Imad	3284
Cutkosky, Mark R.	255	Endo, Gen	2808
D'Andrea, Raffaello	795	Eom, K. S.	1775
D'Attanasio, S.	1586	Erdmann, Michael A.	3673
d'Aulignac, Diego	2452	Erkmen, Aydan M.	1748

Erkmen, Ismet	1748
Espiau, Bernard	2070, 2100, 3996
Esposito, Joel M.	2777
Estlin, Tara	926
Etienne-Cummings, Ralph	494
Even, P.	2013
Ezaki, Hideaki	247
Ezpeleta, J.	2853
F. Ghassemi	2440
Fabrizi, E.	2972
Faiz, Nadeem	3976
Faizullin, Airat	1121
Falconer, David G.	1868
Faloutsos, Petros	682
Färber, Georg	1639, 3132, 3757
Farer, Raoul	1574
Farritor, Shane	4009
Farzin, Bobak	2019
Fasse, Ernest D.	1396
Fatikow, Sergej	1121
Fearing, R. S.	776, 1509, 3409
Featherstone, Roy	826
Febbraro, A. Di	2623
Fellers, James	3505
Ferch, Markus	3221
Ferretti, Gianni	4027
Ferrier, Nicola	508, 3189
Ficklin, Robert W.	1868
Fife, Andrew	1109
Filipozzi, L.	2440
Fiorini, Paolo	420, 908, 2665
Fischer, M.	46
Fish, Russell	212
Fite, Kevin	2671
Flandin, Grégory	2741
Fleury, Sara	88
Florez, J.	2690
Fong, Terrence	2007
Fontaine, J. G.	3013
Foret, J.	3013
Fournier, R.	2013
Fox, Dieter	321, 476
Fraichard, Th.	2046
Freeman, Randy A.	2434
Freixenet, J.	4070
French, Howard	501
Freund, E.	1239
Frezza, Ruggero	1876
Friedrich, Werner	1982
Fröhlich, C.	116
Frost, Richard L.	2052
Fu, Li-Chen	2410, 2641, 3403
Fu, Youwei	1900
Fujimoto, Hideo	3126
Fujita, Masahiro	801, 3040
Fujita, Yoshiaki	3071

Fujiwara, Kazuo	160
Fukuchi, Masaki	314
Fukuda, Toshio	192, 947, 1627, 1955, 2106, 2822 3567, 3939, 398
Fukuoka, Yasuhiro	43
Fukushima, Edwardo F.	258
Furusho, Junji	1328, 134
Furuta, Katsuhisa	305
Galić, Johann	187
Gallo, Laurent	351
Gangloff, Jacques A.	3751
Ganseman, C.	241
Gao, Feng	412
Garcia, G.	2525, 3495
García-Cerezo, A.	2901
Gariepy, Larry	45
Garverick, Steven L.	282
Gauthier, E.	3765
Gautier, M.	2346, 3622, 3964
Geffard, F.	2677
Gelin, R.	2013
Genc, Yakup	871
Genot, Frank	570
Gentili, Federico	3152
Ghosh, Tushar	1574
Gienger, M.	3334
Gini, Maria	501
Giua, Alessandro	2211
Glosser, Greg	2913
Glüer, D.	3272
Go, Seok Jo	2124
Godbole, Datta	1257
Godding, Sara	570
Godin, G.	111
Godler, Ivan	1334
Goel, Puneet	2302
Goeree, Barry B.	1396
Gold, E.	3266
Gold, Timothy B.	2052
Goldberg, Ken	139, 2019
Goldberg, Randal	1517
Goldenberg, A. A.	1484, 2919
Goldfarb, Michael	2671
Goldman, Robert P.	95
Gong, Z.	1557
Gool, Luc Van	3707, 4039
Gopal, Vipin	1257
Gordon, Brandon W.	736
Gorman, Jason	1948
Gottschalk, Stefan	3719
Gracsy, Eric Brassart	1219
Graefe, Volker	1633
Grange, Sébastien	2007
Grant, Danny	1314
Grant, Edward	1574
Gravagne, Ann Ramos	1707

Gravagne, Ian A.	19, 2544
Grebenstein, M.	46
Greenspan, M.	111
Grundfest, Dr. Warren S.	1599
Grupen, R. A.	3823
Gu, Bei	736
Guan, Yisheng	3591
Gueorguiev, A.	3266
Guidi, F.	2771
Guillo, É.	2346
Guivant, Jose	3817
Guo, Weimiao	2605
Gupta, K.	2703
Gupta, Kamal K.	3727
Gupta, Puneet	610
Guptill, Rick	1127
Guthart, Gary S.	618
Ha, Jong-Eun	885
Ha, Q. P.	3543
Hager, Gregory D.	636
Hagras, Hani	3233
Hahm, Geon	1109
Hähnle, M.	46
Hale, Eric	420
Han, Li	263
Hanachi, C.	2416
Hanagata, O.	3040
Hanisch, H.-M.	2865
Hannaford, Blake	770
Hansen, M.	879
Harada, Kensuke	1060, 2159, 3887
Harada, Tatsuya	4082
Harris, S. J.	4103
Harrison, Reid	3913
Härtl, F.	116
Hartmann, Mitra	494
Hartranft, J. P.	3628
Hasegawa, Kiminori	1848
Hasegawa, Yasuhisa	3567, 3983
Hashimoto, Koichi	2765
Hashimoto, Minoru	1334
Hashizume, Hiroyuki	1607
Hashtrudi-Zaad, K.	3107
Hatayama, Mitsunori	4089
Hawker, Geoff	3046
Hayakawa, Yasuhisa	4057
Hayashi, Akifumi	1490
Hayashibara, Yasuo	4063
Hayward, Vincent	1314, 2446
Hebert, Martial	102, 891, 1042
Heitler, Jacob	2019
Helguera, C.	3467
Hemami, Hooshang	2340, 4015
Henle, Frederick	3435
Hensinger, D. M.	3095
Heppler, G. R.	1472

Herrb, Matthieu	88
Hervé, Jean-Yves	1688
Hikizu, M.	1366
Hirai, Shinichi	3071
Hirano, Tomokazu	1144
Hirata, Yasuhisa	458
Hiratsuka, Mitsuichi	577
Hiromitsu, Shinichi	3895
Hirose, Shigeo	33, 414, 1856, 2334, 2583, 2808
Hirukawa, Hirohisa	722
Hirzinger, G.	46, 898
Hirzinger, Gerd	3687
Ho, Yuan-Wei	2410
Hodgins, J. K.	656
Høeg, H. D.	1599
Hoff, Kenneth III	2931
Hoff, William	3739
Hoffmann, K.	1239
Hogg, Tad	1734
Holland, Steve W.	696
Holleman, Christopher	1408
Hollerbach, John M.	757
Hollis, Ralph L.	1621, 1651, 2722
Holmberg, Robert	470
Honegger, M.	1930
Hong, Seok-Won	3114
Hong, Yeh-Sun	3879
Hoover, Adam	342
Horaud, Radu	2070, 2100
Horiuchi, Masashi	1334
Hornby, G. S.	3040
Hornig, T.-J.	3855
Horning, Robert J.	3597
Horowitz, Roberto	953
Hoshino, Shin-Ichiro	2250
Hosoda, Koh	2076
Hougen, Dean F.	501
How, Jonathan	1015
Howe, Robert	3428
Howe, Robert D.	603
Howell, Jon	3485
Hristu, Dimitris	508
Hsia, T. C.	2569, 3296
Hsu, David	537
Hu, Shenghai	1906
Hu, X.	3473
Hu, Xiaoming	2617, 3479
Huang, H.	1557
Huang, Han-Pang	1378, 2191, 3389
Huang, Pedro	682
Huang, Qiang	3346
Huang, Shuguang	3328
Huang, T.	2382
Huang, Wesley H.	2153
Huang, Xinhan	2136
Huang, YiSheng	2185

Huber, Daniel	891	Kagami, Satoshi	1441
Huber, Manfred	3290	Kajita, Shuuji	3346
Hubert, Christopher	40	Kakio, R.	3089
Hudgens, Jeff	3320	Kamiya, Y.	1366
Hurteau, R.	2938	Kamnik, R.	2907
Huseyin, K.	1472	Kampker, Markus	1563
Husty, Manfred L.	7	Kanai, Satoshi	401
Hutchinson, Seth A.	622	Kanayama, Yutaka J.	329
Hwang, Young-Seob	2569	Kaneko, Kenji	1502, 3346
Hybinette, Maria	73	Kaneko, Makoto	1060, 2159, 2611, 3887, 3907
Ikeuchi, Katsushi	1848, 4077	Kang, W.	1755
Imaida, Takashi	2684	Kao, Imin	1048, 1283, 2179
Imamura, Nobuaki	3346	Karagöz, C. Serkan	1076
Inaba, Masayuki	488, 1441	Karger, Adolf	7
Inaba, Noriyasu	1169	Kato, Keisuke	414, 2334
Inamura, Wataru	3227	Kauer, M.	1592
Ingrand, Felix	88	Kaufman, Stephen G.	2039
Inoue, Hirochika	488, 1441	Kavraki, Lydia E.	178, 521, 971, 1408, 2290
Inoue, Kenji	2217	Kawai, Takashi	3895
Inoue, Kousuke	1144	Kawaji, Akiko	947
Inui, M.	3089	Kawamura, Kentaro	1848
Ishikawa, M.	650	Kaynak, Okyay	1882
Ishizuka, Takashi	1334	Kazamura, Norihide	583
Ito, Ken	2082	Kazerooni, H.	563
Ito, Koji	3227	Kelleher, Gerry	2398
Ito, Yoshikuni	3983	Kelly, Rafaél	2112
Itoigawa, Kouichi	947, 3939	Kepplin, V.	1701
Ivanescu, Mircea	3170	Kesavadas, T.	2654
Ivanisevic, I.	1994	Keyser, John	2931
Iwamura, Makoto	1811	Khalil, W.	3964
Iwata, Hiroyasu	2229	Khatib, Maher	88
Izumi, Kiyotaka	2106	Khatib, Oussama	470, 550, 850, 2563, 3970
Jafari, M. A.	2865, 4115	Kheddar, A.	3733
Jain, Abhi	843	Khosla, Pradeep K.	1742
Jan, Y. J.	1568	Kiguchi, Kazuo	2106
Jeng, MuDer	2185	Kim, Byoung-Ho	3879
Jensen, Patrick S.	610	Kim, Doik	2376
Jensfelt, Patric	1036, 2518, 2531	Kim, Dong Sung	2033
Jeon, Gyudong	2802	Kim, Dong-Jun	3359
Jeong, Il-Jun	1182	Kim, Heung-Soo	3449
Ji, Xuerong	750, 1390	Kim, Jinhyun	1714
Jia, Yan-Bin	377	Kim, Jinwook	1942
Jiang, B.	2382	Kim, Jong-Hwan	3449
Jiang, Shilong	263	Kim, Jungyun	1539
Jimenez-Garrido, A.	2901	Kim, Kab Il	3359
Johnson, Andrew E.	132	Kim, Munsang	1539, 1942
Johnson, M. J.	1372	Kim, Sinn	3449
Johnston, David	2284	Kim, Whee Kuk	2485
Jones, C.	789	Kimura, Hiroshi	436, 4077
Jörg, Stefan	3687	Kindel, Robert	537
Joynes, R.	2889	Kirihara, K.	3052
Juang, Jia-Yang	3389	Kishinami, Takeshi	401
Jugessur, Deeptiman	1030	Kitamura, Noriyuki	2583
Juhas, L.	3647	Kitano, H.	820
Jung, Myung-Jin	3449	Kitano, Hiroaki	795, 807, 4089
Kaga, Tomoyuki	1627	Kiyosawa, Yoshihide	1328

Klavins, Eric	3395	Laksanacharoen, Sathaporn	1088
Klowden, Daniel	770	Lambert, A.	2046
Knapek, Marcus	3771	Lamiroux, Florent	178, 2290
Knight, Jonathan	4002	Lamiroy, Bart	2100
Knight, Joss	3203	Lampariello, R.	898
Knoll, Alois	3221	Landzettel, K.	898
Kobayashi, K.	1805	Lane, J. Corde	1188
Kobayashi, S.	1366	Langen, Hans	959
Kock, S.	1918, 1924	Langer, D.	116
Koditschek, Daniel E.	1076, 2589, 3395	Langwald, Jörg	3687
Kogure, Yoshiyuki	1095	Lara, Bruno	1912
Koivo, A. J.	3555	Large, F.	3765
Kolesnik, Marina	1453	Larsen, Eric	3719
Kolluru, R.	1132	Laszlo, Joe	682
Kolluru, Ramesh	1988	Lathuilière, Fabienne	1688
Komoraya, Kiyoshi	1961, 3138, 3346	Latombe, Jean-Claude	537
Konno, Atsushi	482	Laubach, Sharon	926
Konolige, Kurt G.	1868	Laugier, C.	3765
Konolige, Kurt	3931	Laugier, Christian	2452
Konyo, Masashi	3416	LaValle, Steven M.	544, 995, 1657
Kostas J. Kyriakopoulos	1233	Lawley, Mark A.	3383
Kosuge, Kazuhiro	458, 583	Lawrence, P.	1682
Koto, Tetsuo	4089	Lawton, Jonathan R.	1824, 2728
Kotoku, Tetsuo	3138, 3346	LeBlanc, K.	3796
Kouikoglou, Vassilis	2629	Lee, Beom Hee	3952
Kovacs, G. T.	1101	Lee, C. S. George	3861
Koyachi, Noriho	3346	Lee, Christoher	2796
Kozlowski, K.	3531	Lee, D. T.	3695
Kozono, Hisamitsu	570	Lee, Gordon	1574
Kragić, D.	1663	Lee, Hyun Chul	2033
Krantz, Donald	3919	Lee, Jae-Won	3525
Krantz, Donald G.	501	Lee, Jihong	2569
Kriegman, David J.	3771	Lee, Jin Won	3952
Krishnan, H.	1906	Lee, Joon-Soo	2747
Krishnan, Hariharan	983	Lee, Kok-Meng	184, 1138
Kröse, Ben	2979	Lee, M. H.	3247
Kry, Paul G.	857	Lee, Mary S.	4095
Kuffner, Jr., James J.	995	Lee, Min Cheol	2124
Kuhlmann, J. L.	3095	Lee, Pan-Mook	3114
Kumar, Rajesh	610	Lee, Rong-Shean	2203
Kumar, Vijay	348, 1082, 2777, 3561	Lee, Sang Moo	3952
Kume, Shinji	1651	Lee, Sooyong	3505
Kuniyoshi, Yasuo	81, 2235	Lee, Sukhan	3525
Kuo, Chung-Hsien	2191	Lee, Tong	1459
Kurabayashi, Daisuke	464	Lee, Tsu-Tian	2130
Kurazume, Ryo	1856	Lee, Wei Zen	3083
Kusiak, A.	206	Lee, Woo Ho	2840
Kwak, E.	2889	Leifer, L. J.	1372
Kweon, In-So	885	Lenarčič, Jadran	27
Kwon, Dong-Soo	3114	Lenser, Scott	1225
Kwon, Sang Joo	4051	Leon, R. D. de	2889
Kwon, Wook Hyun	2033	Leu, Yih-Guang	2130
Lacaze, Alberto	1201	Lewis, F. L.	1289
Lacey, Gerard	1354	Lewis, M. Anthony	494
Lacroix, Simon	3519	Li, Jingshan	2635
Lai, Fuji	603	Li, L.	1472

Li, Perry Y.	501	Magnani, GianAntonio	402
Li, Wen	2264	Magnino, F.	287
Li, Wen-Jing	1459	Mahony, R.	124
Li, Yunfeng	953	Maimone, Mark W.	229
Li, Zexiang	263	Mair, A.	375
Lim, Patrick	1982	Makino, Takaaki	363
Lin, Meng-Tsang	2203	Malis, E.	275
Lin, Ming C.	2931, 3719	Malis, Ezio	630, 318
Lin, Ming-Hung	3403	Mallet, Anthony	351
Lin, Qiao	170	Malver, Fred	50
Lin, Sheng	2919	Mandelbaum, R.	87
Lindström, Mattias	3278	Manikonda, Vikram	403
Lipkin, Harvey	1670	Manocha, Dinesh	2931, 371
Lipson, H.	1761	Maravall, D.	232
Listopad, Samuel	4002	Marcelo, Ang H. Jr.	983, 1906, 235
Little, Charles	3739	Marchand, Éric	1720, 274
Liu, Caizhen	2709	Marefat, Michael M.	139
Liu, H.	46	Marhefka, Duane W.	306
Liu, Ming	1296	Marigo, Alessia	28
Liu, Xin-Jun	4122	Marsland, Stephen	384
Liu, Yun-hui	3284, 3573, 3579	Martí, J.	407
Llama, Miguel A.	2112	Martin, A. Miguel San	13
Löffler, K.	3334	Martinelli, Francesco	315
Loganantharaj, R.	1132	Maruyama, Takeo	138
Lombardo, Jean-Christophe	596	Mascaro, Stephen	342
Loos, H. F. M. Van der	1372	Mason, Matthew T.	2479, 249
Lope, J. de	2328	Mason, Richard	42
López-Mellado, E.	2871	Masoud, Ahmad A.	294
Low, K. H.	2605, 2834	Masoud, Osama	105
Lowe, D.	1682	Masoud, Samer A.	294
Lozano, J. F.	2901	Masutani, Y.	82
Lozano, R.	1245	Matarić, Maja	269
Lu, Ziyi	1676	Mateo, Manuel	240
Luangjarmekorn, Poom	947	Mathelin, Michel F. de	3751
Luca, Alessandro De	233, 2789	Matsubara, Hitoshi	408
Luck, Jason	3739	Matsuhira, Nobuto	313
Luecke, Greg R.	2783	Matsui, Hiro	363
Luh, Peter B.	389	Matsumoto, K.	312
Lumelsky, V.	1994	Matsuno, Fumitoshi	1490, 2952, 408
Lund, Henrik Hautop	813	Matsuno, Junya	356
Luntz, Jonathan	2270	Matsuno, Takayuki	195
Luntz, Jonathan E.	3666	Matthies, Larry	122, 184
Luo, Ren C.	2118, 3083	Mattila, Jouni	300
Lutz, K.	3757	Mattoccia, S.	344
Lynch, Kevin M.	354, 2709	Mavroidis, Constantinos	307
Ma, Wing-Choi	1621	Mbede, Jean Bosco	213
MacDorman, Karl F.	3253	McAllister, P. L.	330
Machado, J. A. Tenreiro	4109	McCarragher, Brenan J.	730, 1402, 1645, 3028, 383
Machida, Shigenori	1360	McCarthy, J. Michael	55
Macklis, Roger	2913	McCullough, Christopher C.	147
MacLean, Karon E.	783	McFarlane, Duncan C.	3701
MacNamara, Shane	1354	McInroy, John E.	193
Mae, Yasushi	2217	McIsaac, Kenneth A.	169
Maeda, Atsushi	947	McKendrick, R.	242
Maeno, Takashi	3660, 3895	McMurray, Gary V.	167
Magerko, Brian	4002	Meerkov, Semyon M.	263

Megali, G.	1586
Meggiolaro, M. A.	3609
Mehranderzh, M.	2703
Melchiorri, C.	3443
Meldrum, D. R.	198
Meng, Qingchun	3829
Mercorelli, Paolo	3901
Meredith, P.	1132
Merlet, J.-P.	1
Messner, William	3666
Mettenleiter, M.	116
Mezouar, Youcef	2759
Micaelli, A.	2677
Milgram, R. James	2039
Milios, Evangelos E.	3164
Miller, Brian E.	2434
Mills, James K.	3537
Minakata, K.	2889
Minciardi, R.	2623
Mitsuishi, Mamoru	1607
Miura, Jun	2258
Miwa, Hiroyasu	2243
Miyata, Natsuki	3176
Mizuno, S.	650
Mohri, Akira	1811
Mok, Swee M.	3695
Moll, Mark	3673
Montagnat, J.	864
Moody, S. E.	198
Moore, Andrew W.	4095
Moors, Mark	476
Morel, G.	2088, 2677
Mori, Shunji	1531
Mori, Taketoshi	4082
Morrisett, Benoit	88
Morita, Toshio	2229
Moro, Antonio Reyes	2398
Morozov, Alexei	2370
Morse, William D.	2000
Mosemann, H.	744
Motomura, Yoichi	2979
Moutarlier, Philippe	88
Moy, G.	776, 3409
Mukundakrishnan, Bharath	965
Mumolo, Enzo	2966
Muñoz, V. F.	2901
Muñoz, X.	4070
Musliner, David J.	95
Mussa-Ivaldi, F. A.	300
Muszyński, Robert	2493
Nagai, K.	820
Nagy, L.	3647
Nakabo, Y.	650
Nakamura, Katsuhiko	2173
Nakamura, Tatsuya	1095
Nakamura, Yoshihiko	247, 688, 2250

Nakanishi, Jun	2822
Nakano, E.	820
Narahari, Y.	1151
Natale, Ciro	3687, 3873
Navarro, Oscar	2370
Neal, M. J.	3247
Nebot, E. M.	2512
Nebot, Eduardo	3817
Nee, A. Y. C.	3101
Negm, Mohamed M.M.	3020
Nelson, Brad	501
Nelson, Bradley J.	965, 1115, 3919
Nelson, Gabriel M.	1088, 2828
Nesnas, Issa A. D.	2296
Neuhaus, Peter	563
Newman, Paul	1793
Newman, Wyatt S.	1551, 2392, 2913, 3597
Nguyen, Minh-Chinh	1633
Nicholls, Howard	1982
Nobe, Jun	4089
Noda, Itsuki	4089
Nolich, Massimiliano	2966
Nomura, H.	1366
Noritsugu, Toshiro	2765
Norris, Jeffrey S.	2025
Nourbakhsh, Illah	1023, 4002
O'Neil, K.	2575
Obergfell, Klaus	835
Oda, Mitsushige	914, 1169
Ogata, Tetsuya	4057
Ogawa, Shinobu	1360
Ogawara, Koichi	4077
Ögren, P.	3473
Oh, Paul Y.	2094
Oh, S.-R.	1775
Oh, Sang-Rok	2747, 3879
Ohba, Kohtaro	3138
Ohkami, Yoshi	1969
Ohnishi, Masatoshi	1384
Ohtsuki, Kayoko	1384
Ohya, Akihisa	3925
Ojeda, Lauro	2064
Okada, Kei	1441
Okada, Masafumi	2250
Okamura, Allison M.	255
Olsen, Bent David	342
Olson, Clark F.	1447
Olson, Clark	926
Oreback, Anders	3278
Orin, David E.	3063
Orin, David	826
Oriolo, Giuseppe	1817, 2789
Oropeza, Ricardo Swain	3771
Ostrowski, James P.	1695, 2734, 3811
Osuka, K.	820, 3052
Ota, Jun	1144, 3144, 3176

Otake, Mihoko	488	Pollard, Nancy S.	663
Ottaviano, Erika	1976	Pollefeys, Marc	4039
Ouelhadj, D.	2416	Polotski, V.	2938
Oussalah, M.	3616	Ponce, Jean	147, 871, 1068
Overmars, Mark	139	Pons, J. L.	3654
Owens, Ken	122	Poon, Derek	2019
Owens, Scott	2290	Popović, Zoran	670
Oyama, Eimei	3239	Prassler, E.	2364
Pagilla, Prabhakar R.	1308	Pratt, Gill A.	1321, 3989
Pagliarini, Luigi	813	Prattichizzo, D.	2771, 3901
Pai, Dinesh K.	857, 2146	Prigge, Eric	1015
Paiva, Ely Carneiro de	1269	Qiao, Hong	1420
Palopoli, Luigi	1830	Qin, Zhiqiang	263
Pandy, Marcus G.	676	Quach, Nghe Huan	1296
Pang, J. S.	361	Quaid, Arthur E.	4021
Panne, Michiel van de	682	Quinn, Roger D.	154, 1088, 1109, 2828
Papadopoulos, Didier	444	R. E. Ellis	3308
Papanikolopoulos, Nikolaos	501, 1054, 3919	Ramírez, Gabriel	2058
Papavasilopoulos, George	1182	Ramírez-Serrano, A.	2847
Papegay, Yves	722	Ramírez-Treviño, A.	2871
Parenti-Castelli, Vincenzo	27	Ramos, Josué Jr. G.	1269
Park, F. C.	1539, 1942, 3958	Ramos, M. C.	3555
Park, Jong Hyeon	3353	Rankin, James S. III	1157
Park, Jonghoon	3945	Raush, Gustavo	3158
Park, Jonghun	3371	Redon, S.	3733
Park, Y. I.	1539	Reggiani, Monica	1002
Parker, G. G.	1496	Rehbinder, Henrik	2617
Parnianpour, Mohamad	4015	Reid, Ian	3203
Paromtchik, Igor E.	1213	Reidy, M.	1592
Patton, J. L.	300	Reinkensmeyer, D. J.	2889
Paul, V.	4103	Rekleitis, Ioannis M.	3164
Pegard, Claude	1219	Requicha, Aristides A. G.	2322
Peixoto, Paulo	3209	Reuter, J.	3512
Pelican, Michael J.	95	Reveliotis, Spyros A.	3371
Pelinescu, Diana	3585	Rhim, Sungsoo	1465
Peñín, L. F.	3120	Richmond, Joshua L.	2146
Pernette, Eric	959	Riesenfeld, Richard	212
Perona, Pietro	2665	Riley, Marcia	2223
Perrin, Doug	1054	Rioux, M.	111
Pfeiffer, Andrew	1670	Ritzman, Roy E.	1088
Pfeiffer, F.	2165, 2659, 3334	Rivera-Rangel, I.	2871
Phillips, Stephen M.	1109	Rivlin, Ehud	2993
Phillis, Yannis A.	2629	Rizzi, Alfred A.	1621, 1651, 2270, 2722, 4021
Piccaluga, Aldo	2211	Roberts, Jonathan M.	3790
Picinbono, Guillaume	596	Roberts, Rodney G.	3302
Pick, D. L.	1509	Robinett, R. D.	1496
Piepmeyer, Jenelle Armstrong	1670	Robinson, David W.	1321
Pierrot, François	1615	Robl, Christian	1639
Pinzon, L. E.	2865	Rocco, Paolo	4027
Pirjanian, Paolo	2696	Rock, Stephen	537
Pizarro, Oscar	1767	Rodriguez, Guillermo	843
Plestan, F.	2088	Rodríguez, H.	3654
Podder, Tarun Kanti	1251, 3461	Rohmoser, B.	2364
Poignet, Ph.	3622	Ros, Lluís	3713
Pollack, Alan J.	1088	Rosenblatt, J. K.	2512
Pollack, J. B.	1761	Rosenblatt, Julio	920