

Author Index

A

Allgöwer, Frank, 374
Arkin, Adam, 81

B

Backx, Ton C., 43
Bahri, Parisa A., 398
Bartusiak, R. Donald, 342
Bascur, Osvaldo, 7
Bertsekas, Dimitri P., 92
Bindlish, Rahul, 433
Bock, H. Georg, 374
Bonvin, D., 255
Braatz, Richard D., 307
Buziol, Stefan, 82

C

Cherukuri, Mohan R., 413
Chodavarapu, Surya Kiran, 364
Christofides, Panagiotis D., 369
Cordeiro, Cajetan, 290

D

Daoutidis, Prodromos, 274
Desborough, Lane, 169
Diehl, Moritz, 374
Dochain, Denis, 423
Downs, James J., 328, 438
Doyle III, Francis J., 75, 290
Dünnebier, Guido, 239

E

El-Farra, Nael H., 369
Engell, Sebastian, 239

F

Findeisen, Rolf, 374
Finegan, Conner S., 408
Fontaine, Robert W., 342

G

Gendron, Sylvain, 423
Giridharan, Guruprasad A., 379
Grossmann, Ignacio E., 150

H

Hanisch, Felix, 239
Harjunkoski, Iiro, 150
Harris, Thomas J., 208
Hasebe, Shinji, 307
Henson, Michael A., 274
Hestetun, Kristin, 393
Huang, Biao, 190

Huang, Hsiao-Ping, 384

J

Jeng, Jyh-Cheng, 384
Jørgensen, Sten Bay, 55

K

Kanter, Joshua M., 389
Kennedy, J. Patrick, 7
Klatt, Karsten-U., 239
Koppel, Lowell B., 1
Kothare, Mayuresh V., 443
Kowalewski, Stefan, 121
Kulhavý, Rudolf, 352

L

Larsson, Truls, 393
Lee, Jay H., 55
Lee, Peter L., 398
Li, Huaizhong, 398
Lid, Tore, 403
Lu, Joseph, 352

M

Malone, Michael F., 428
Marquardt, Wolfgang, 12
Mauch, Klaus, 82
Miller, Randy, 169
Morari, Manfred, 136
Muske, Kenneth R., 408

N

Nagy, Zoltan, 374
Nikolaou, Michael, 413

P

Parker, Robert S., 418
Patwardhan, Rohit, 190
Perrier, Michel, 423
Pistikopoulos, Efstratios N., 223

R

Rawlings, James B., 433
Renou, Stéphane, 423
Reuss, Matthias, 82
Rodríguez, Iván E., 428
Ruppen, D., 255

S

Sakizlis, Vassilis, 223
Saleem, S., 448
Samad, Tariq, 352
Schlöder, Johannes P., 374

Schmid, Joachim, 82
Schwaber, James S., 75
Seider, Warren D., 389
Seppala, Christopher T., 208
Shah, Sirish L., 190
Skliar, Mikhail, 379
Skogestad, Sigurd, 393, 403
Sontag, Eduardo D., 109
Soroush, Masoud, 290, 389
Srinivasan, B., 255
Strand, Stig, 403

T

Tenny, Matthew J., 433
Thornhill, N. F., 448

V

van den Heever, Susara A., 150
Vogel, Ernest F., 438

W

Wan, Zhaoyang, 443
Wang, M., 448
Willems, Jan C., 97

Y

Young, Robert E., 342

Z

Zak, Daniel E., 75
Zheng, Alex, 364, 428

Subject Index

A

Adaptive agents, 352
Anti-windup-bumpless-transfer control, 413
Application, 438
Assessment, 384
Asymptotically stable invariant ellipsoid, 443
Auto-tuning, 384

B

Batch chemical industry, 255
Batch control, 290
Batch-to-batch optimization, 255
Behaviors, 97
Benchmark system, 384
Biochemical reactors, 274
Biological processes, 75
Bioreactor control, 418
Bleaching reactor, 423
Bounded control, 369
Business process control, 1

C

Cascade control, 328
Cell population dynamics, 274
Chromatographic separation, 239
Circulatory system model, 379
Closed-loop identification, 55
Computational effort, 374
Computational genomics, 75
Computational neuroscience, 75
Constraint control, 438
Control, 307
Control as interconnection, 97
Control strategy design, 328
Control structure, 393
Control valve, 169
Controllability, 97, 364
Controller performance, 208
Cross-functional integration, 352
Crude unit, 403
Crystallization, 307

D

Data-centric modeling, 352
Desktop, 7
Detectability, 109
Dissipation inequalities, 109
Distillation control, 374
Distributed parameter systems, 307, 423
District heating, 352
DMC, 423
Dynamic models, 136, 239

Dynamic optimization, 43, 255
Dynamic programming, 92

E

Early-lumping control, 423
Electric power, 352
EM algorithm, 448
Estimation, 307

F

Fault diagnosis, 121
Feasibility, 433
Flexibility, 364
Flux analysis, 82
Flux optimization, 82
Fundamental modeling, 12

H

H_∞ control, 109
Heat exchanger network, 403
Hybrid automata, 121
Hybrid systems, 121, 136

I

IAE performance, 384
Identification for control, 55
Industrial control, 342
Industrial survey, 169
Inferential control, 290
Information systems, 7
Infrastructure, 7
Input constraints, 369
Input saturation, 413
Input-output linearization, 389
Input-to-state stability, 109
Inverse optimality, 369
ISS, 109

L

Large scale, 374
Late-lumping control, 423
Linear matrix inequalities, 443
Linear regression, 448
Lyapunov functions, 109
Lyapunov's direct method, 369

M

Maximum principle, 413
Metabolic networks, 82
Minimum variance control, 208
Minimum-phase, 109
Mining, 7

Mixed-integer dynamic optimization, 223
 Mixed-integer programming, 136, 150
 Model predictive control, 190, 328, 352, 413, 433, 438, 443
 Model uncertainty, 55
 Model-based control, 43, 239, 342, 389
 Model-plant mismatch, 190
 Multi-rate measurements, 290
 Multiple shooting, 374
 Multiple steady states, 428
 Multivariable control strategy, 438
 Multivariable systems, 55, 208
 Multivariate minimum variance control, 190

N

Neuro-dynamic programming, 92
 Non-minimum-phase systems, 389
 Nonlinear control, 274, 342, 389, 413
 Nonlinear model predictive control, 12, 374, 418
 Nonlinear model reduction, 12
 Nonlinear processes, 433
 Nonlinear systems, 55
 Normalized multivariate impulse response, 190

O

Observers, 109
 Oil refining, 352
 On-line optimization, 255
 Operability, 223
 Optimal control, 92, 255
 Optimization, 7, 150, 239, 307, 403
 Optimization problems, 136
 Optimization strategies, 433

P

Parameter estimation, 55
 Particle size distribution, 290
 Particulate processes, 307
 Passivity, 398
 Performance analysis, 448
 Performance assessment, 169
 Physiological control of rotary blood pumps, 379
 PID control, 169
 Planning, 150
 Plantwide control, 364, 393
 Polymer product quality, 290
 Polymerization reactor control, 290
 Polymerization reactor monitoring, 290
 Population balance models, 274, 290, 307
 Predictive control, 136, 342
 Prioritization, 169
 Process control, 223, 290, 393, 398
 Process control benefit estimation, 408
 Process control economic analysis, 408
 Process control education, 328
 Process control improvement, 408

Process control vendor, 328
 Process design, 223
 Process dynamics, 12
 Process identification, 55
 Process modeling, 43
 Project planning, 1
 Project scheduling, 1

Q

Quantization, 448
 Quasi-infinite horizon, 374

R

Reactive distillation, 428
 Real-time optimization, 12, 374
 Reconciliation, 403
 Regulatory control, 169
 Reinforcement learning, 92
 Robust control, 55, 398
 Run-to-run optimization, 255

S

Safety analysis, 121
 Scheduling, 150
 Simulated moving bed, 239
 Simulation, 307
 Single loop, 384
 Stability, 428
 State feedback design, 389
 State space, 438
 Steady-state optimization, 393
 Steady-State robust feasibility, 364
 Stiction, 169
 Suboptimal control, 92, 433
 Subspace methods, 208
 Synthesis, 121

T

Tearing and zooming, 97
 Time delay, 190
 Time series analysis, 448
 Time-varying systems, 55
 Transient operation, 12

U

Uncertainty, 223, 369

V

Value metrics, 1
 Vector autoregressions, 208
 Ventricular assist devices, 379
 Verification, 121
 Volterra-Laguerre models, 418