660.6 BIOp

Index

A

activated sludge, 229, 230
adaptive control, 135
adaptive linearizing control, 15, 162
adaptive observer, 133
anaerobic digestion, 68, 131, 163, 165, 230
anti-reset windup, 159
asymptotie observer, 118, 125

B

batch, 50, 61, 62, 120, 145, 150, 161
breakdown detection, 211

C

continuous reactor, 129, 145, 150
controller, 62, 144, 153, 155, 229
covariance matrix, 53, 55, 59, 65
culture of animal cells, 116, 119, 129

D, E

diagnostic, 152, 211, 213, 214
equilibrium point, 70, 148, 149, 155
experiment design, 14, 48, 57, 58, 70, 72

F

fault detection, 214
Fault Detection and Diagnosis (FDD), 228, 231
Fault Detection and Isolation (FDI), 212, 213
fed-batch, 62, 120, 124, 129, 145, 150, 161
fed-batch reactor, 228
Fisher information matrix, 53, 56, 59, 60

G–I

general dynamic model, 116, 119, 129, 131
Haldane model, 63, 70, 146, 148, 149, 158
hybrid model, 14
identifiability, 47
instability, 70, 229

K–L

Kalman filter, 91
Kalman observer, 134
Luenberger observer, 118, 134

M

maintenance reaction, 64
material balance, 13, 15, 64, 69, 123, 124, 128, 135, 145, 154, 165, 219, 228, 230
Monod's model, 48, 50, 52, 56, 70, 135, 146, 156
mortality, 147

N

neural network, 224
nitrification, 61
nonlinear PI controller, 160

O

observability, 48
observer, 13, 15, 116, 218, 220, 226, 231
optimal adaptive control, 15

P

parameter estimation, 15, 47, 54, 63, 115, 218, 221, 230
parameter identification, 13, 47, 54, 57, 63, 68
PI controller, 157, 160
PID controller, 158
pratical identifiability, 47, 52

R, S

respirogram, 62
robust control, 162
sensitivity function, 53, 55, 73
software sensor, 13, 79, 144, 151
specific growth rate, 15, 73, 117, 119, 123, 145, 156
stability, 136, 137, 145, 147, 162, 167, 220
state transformation, 14, 120, 124, 136
structural identifiability, 47, 48
supervision, 15, 143, 213, 216, 225, 230

V–Y

variance, 54, 61, 62, 65, 66
yeast growth, 129