| | | | PURPOSE | | | | | | | | | | | | COUNTRY/IES | | | | | | | | BACKGROUND | | | | | | | | | | | | |
|-------------------------|------------------------|-----------------|---------------------|------------|--------------|--------------|-----------------------|---------|---------------------|--------------|---------------------|------------------|----------------------|----------------------|-------------|---------------|--------------|---------------|-------------------|-------------------------|--------------------|--------------------|------------|-------------|------------------------|----------------------|---------------------|--------------|---------------|----------------|--------------------|----------------------|-----------------|---------------------|-------|
| Techniques | # papers per technique | Fault detection | Data reconciliation | Prediction | soft-sensing | chemometrics | Process understanding | Control | Supervisory control | Optimization | Knowledge discovery | Decision support | Technology selection | Knowledge management | EU | South-America | Asia-Oceania | North-America | Asia-Oceania & EU | North-Am & Asia-Oceania | North-America & EU | South-America & EU | Africa | Engineering | Electrical engineering | Computer engineering | Control engineering | Chemometrics | Biotechnology | Mechanical eng | Eng & Computer eng | Eng & Electrical Eng | Eng& Statistics | Eng & biotechnology | Other |
| control chart | 7 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| mass balance | 9 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | -1 | 1 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PCA | 64 | 27 | 0 | 7 | 5 | 5 | 18 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 2 | 14 | 3 | 10 | 2 | 0 | 2 | 0 | 46 | 5 | 0 | 2 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 4 |
| ICA | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 1 | 1 | -1 | 0 | 0 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| SOM | 12 | 1 | 1 | 1 | 4 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| Regression | 20 | 1 | 1 | 3 | 4 | 7 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 0 | 7 | 5 | 1 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 1 | 2 |
| PLS | 36 | 4 | 0 | 11 | 2 | 16 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 | 11 | 2 | 3 | 0 | 0 | 0 | 0 | 17 | 1 | 1 | 1 | 2 | 2 | 0 | 1 | 2 | 1 | 2 | 6 |
| ANN | 99 | 5 | 1 | 49 | 14 | 3 | 2 | 14 | 2 | 8 | 0 | 0 | 1 | 0 | 39 | 1 | 39 | 11 | 5 | 1 | 1 | 1 | 1 | 57 | 15 | 2 | 3 | 0 | 2 | 4 | 7 | 4 | 1 | 0 | 4 |
| SVM | 7 | 1 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 |
| clustering | 37 | 7 | 0 | -1 | 3 | 2 | 16 | 5 | 0 | 0 | 2 | 1 | 0 | 0 | 28 | 0 | 6 | 1 | 2 | 0 | 0 | 0 | 0 | 16 | 11 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 1 | 0 | 2 |
| Qualitative features | 28 | 1 | 0 | 1 | 0 | 0 | 0 | 23 | 0 | 2 | 0 | 1 | 0 | 0 | 13 | 2 | 8 | 1 | 1 | 1 | 2 | 0 | 0 | 19 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 |
| Rules | 30 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 1 | 4 | 9 | 6 | 1 | 22 | 2 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 12 | 1 | 4 | 0 | 0 | 0 | 0 | 11 | 1 | 0 | 0 | 1 |
| CBR | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 2 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Fuzzy logic | 60 | 4 | 0 | 12 | 2 | 0 | 3 | 35 | 0 | 0 | 0 | 2 | 2 | 0 | 31 | 0 | 21 | 1 | 3 | -1 | 1 | 2 | 0 | 33 | 12 | 3 | 3 | 0 | 2 | 0 | 3 | 2 | 0 | 0 | 2 |
| DSS | 43 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 2 | 1 | 11 | 14 | 1 | 28 | 1 | 7 | 6 | 0 | 0 | 1 | 0 | 0 | 20 | 1 | 6 | 0 | 0 | 0 | 1 | 12 | 1 | 1 | 0 | 1 |
| Ontologies | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 3 | 2 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |