Faculty of Engineering Research Output

University of Alberta

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A report to examine the publication output of the Univeristy of Alberta Faculty of Engineering. Searches were conducted using Web of Science, and limited to the five publication years from 2012-2016.

Initial processing of the data was accomplished with the Bibliometrix package written by Massimo Aria and Corrado Cuccurullo[1]. This allowed easy conversion of records into a data frame to facilitate further processing.

Publication data was grouped by department to facilitate disciplinary comparison. Note that the disciplines are grouped differently at different schools, and not all schools have Alberta-equivalent departments.

### Publication record

Articles per year - Biomedical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Toronto | 213 | 223 | 243 | 319 | 316 |
| McGill | 110 | 138 | 178 | 199 | 204 |
| Western | 144 | 150 | 173 | 165 | 142 |
| Ottawa | 86 | 100 | 90 | 116 | 121 |
| Alberta | 69 | 59 | 52 | 62 | 51 |
| Manitoba | 36 | 35 | 45 | 58 | 45 |
| McMaster | 30 | 26 | 37 | 35 | 44 |
| Dalhousie | 29 | 35 | 26 | 38 | 43 |
| Saskatchewan | 23 | 34 | 34 | 48 | 43 |
| Calgary | 13 | 12 | 8 | 23 | 19 |
| Montreal | 13 | 18 | 20 | 24 | 18 |
| UBC | 3 | 2 | 10 | 13 | 16 |
| Waterloo | 1 | 2 | NA | 9 | 2 |

Articles per year - Chemical and Materials Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Alberta | 317 | 363 | 375 | 408 | 442 |
| Queens | 371 | 377 | 400 | 426 | 403 |
| Toronto | 272 | 240 | 274 | 307 | 331 |
| McGill | 207 | 214 | 267 | 274 | 324 |
| Waterloo | 209 | 268 | 289 | 340 | 299 |
| UBC | 243 | 226 | 256 | 269 | 261 |
| Western | 246 | 280 | 274 | 272 | 236 |
| Calgary | 140 | 141 | 151 | 164 | 220 |
| McMaster | 183 | 192 | 193 | 207 | 203 |
| Ottawa | 86 | 100 | 90 | 116 | 121 |
| Montreal | 117 | 134 | 122 | 125 | 108 |
| Laval | 113 | 99 | 102 | 18 | 106 |
| Dalhousie | 30 | 53 | 42 | 63 | 59 |
| Saskatchewan | 54 | 78 | 66 | 72 | 56 |

Articles per year - Civil Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| McGill | 180 | 214 | 272 | 249 | 336 |
| Alberta | 172 | 196 | 232 | 288 | 300 |
| Queens | 163 | 181 | 185 | 244 | 199 |
| Waterloo | 123 | 111 | 156 | 137 | 161 |
| Toronto | 112 | 129 | 134 | 156 | 160 |
| Calgary | 153 | 139 | 166 | 169 | 144 |
| UBC | 85 | 101 | 97 | 128 | 135 |
| Laval | 67 | 62 | 77 | 13 | 90 |
| Ottawa | 34 | 57 | 53 | 72 | 88 |
| McMaster | 30 | 48 | 57 | 83 | 87 |
| Western | 51 | 69 | 92 | 83 | 74 |
| Manitoba | 19 | 26 | 26 | 32 | 57 |
| Dalhousie | 35 | 31 | 32 | 42 | 46 |
| Saskatchewan | 25 | 20 | 17 | 26 | 38 |
| Montreal | 72 | 68 | 53 | 41 | 37 |

Articles per year - Electrical and Computer Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Toronto | 411 | 479 | 456 | 513 | 505 |
| Alberta | 371 | 391 | 384 | 418 | 473 |
| Waterloo | 423 | 525 | 502 | 429 | 459 |
| UBC | 334 | 399 | 384 | 489 | 457 |
| Ottawa | 248 | 320 | 309 | 377 | 352 |
| McGill | 271 | 322 | 332 | 360 | 331 |
| Queens | 180 | 234 | 301 | 289 | 276 |
| Calgary | 188 | 186 | 201 | 179 | 206 |
| Manitoba | 115 | 157 | 173 | 160 | 205 |
| McMaster | 176 | 176 | 157 | 200 | 176 |
| Western | 142 | 161 | 123 | 143 | 127 |
| Montreal | 167 | 164 | 168 | 152 | 115 |
| Laval | 64 | 57 | 86 | 41 | 99 |
| Dalhousie | 39 | 68 | 75 | 91 | 87 |
| Saskatchewan | 72 | 66 | 64 | 55 | 80 |

Articles per year - Mechanical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Toronto | 252 | 252 | 276 | 330 | 350 |
| Alberta | 200 | 191 | 218 | 233 | 257 |
| Waterloo | 250 | 187 | 204 | 238 | 224 |
| McGill | 173 | 205 | 187 | 218 | 206 |
| Queens | 136 | 146 | 158 | 175 | 162 |
| UBC | 132 | 112 | 133 | 156 | 146 |
| Calgary | 96 | 100 | 88 | 110 | 124 |
| Saskatchewan | 84 | 80 | 122 | 146 | 121 |
| Manitoba | 76 | 64 | 97 | 107 | 114 |
| McMaster | 57 | 55 | 71 | 73 | 102 |
| Western | 102 | 130 | 101 | 107 | 94 |
| Ottawa | 73 | 44 | 83 | 72 | 80 |
| Montreal | 72 | 60 | 99 | 87 | 68 |
| Dalhousie | 26 | 42 | 29 | 35 | 42 |
| Laval | 30 | 17 | 41 | 15 | 42 |

### Research output per faculty

Annual faculty numbers were not available for all Alberta departments, nor for all institutions. Departmental-level Articles/year/faculty was calculated for 8 of the 15 Canadian schools. This calculation was also done at the overall institution level for the other 7 schools.

Articles per faculty member per year - Chemical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Western | 11.7 | 13.3 | 11.4 | 11.3 | 9.8 |
| Alberta | 6.3 | 7.4 | 7.8 | 8.3 | 8.8 |
| Waterloo | 6.1 | 8.1 | 9.3 | 10.6 | 8.8 |
| Ottawa | 6.1 | 7.1 | 6.4 | 7.7 | 8.1 |
| Toronto | 6.6 | 5.9 | 6.8 | 7.5 | 8.1 |
| McMaster | NA | 5.6 | 5.5 | 5.9 | 6.3 |
| Calgary | 4.2 | 4.1 | 4.2 | 4.6 | 5.4 |
| Montreal | 4.5 | 5.2 | 5.1 | 4.8 | 4.0 |

Articles per faculty member per year - Civil Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Alberta | 3.4 | 4.0 | 4.8 | 5.9 | 6.0 |
| Ottawa | 2.4 | 4.1 | 3.8 | 4.8 | 5.9 |
| Waterloo | 3.6 | 3.4 | 5.0 | 4.3 | 4.7 |
| Toronto | 2.7 | 3.1 | 3.4 | 3.8 | 3.9 |
| Calgary | 4.6 | 4.1 | 4.6 | 4.7 | 3.5 |
| Western | 2.4 | 3.3 | 3.8 | 3.5 | 3.1 |
| McMaster | NA | 1.4 | 1.6 | 2.4 | 2.7 |
| Montreal | 2.8 | 2.6 | 2.2 | 1.6 | 1.4 |

Articles per faculty member per year - Electrical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Alberta | 6.7 | 7.1 | 7.1 | 8.2 | 9.1 |
| Toronto | 6.0 | 6.7 | 6.3 | 7.1 | 7.1 |
| Calgary | 5.4 | 5.6 | 6.3 | 5.4 | 6.4 |
| Ottawa | 4.2 | 5.4 | 5.3 | 6.2 | 5.8 |
| Waterloo | 5.2 | 6.4 | 6.1 | 5.2 | 5.3 |
| Western | 5.3 | 6.0 | 4.9 | 5.3 | 4.2 |
| McMaster | NA | 3.3 | 3.0 | 3.8 | 3.1 |
| Montreal | 2.7 | 2.6 | 2.7 | 2.4 | 1.9 |

Articles per faculty member per year - Mechanical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Toronto | 5.4 | 5.1 | 5.5 | 6.6 | 6.6 |
| Alberta | 5.9 | 5.0 | 5.7 | 5.3 | 5.7 |
| McMaster | NA | 2.2 | 2.7 | 2.8 | 4.6 |
| Western | 4.2 | 5.4 | 4.6 | 4.9 | 4.5 |
| Calgary | 3.1 | 3.2 | 3.0 | 3.5 | 4.0 |
| Ottawa | 3.3 | 2.0 | 3.6 | 3.1 | 3.8 |
| Montreal | 1.6 | 1.3 | 2.1 | 2.0 | 1.6 |

Average number of articles per faculty member per year, by institution

|  |  |
| --- | --- |
| School | n |
| Queens | 8.42 |
| Alberta | 6.40 |
| McGill | 6.28 |
| UBC | 5.64 |
| Saskatchewan | 4.48 |
| Manitoba | 2.76 |
| Dalhousie | 2.12 |
| Laval | 1.86 |

Articles per faculty member per year, Faculty-Level

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Toronto | 6.4 | 6.5 | 6.8 | 8.0 | 8.1 |
| Alberta | 6.0 | 6.3 | 6.7 | 7.3 | 7.7 |
| Waterloo | 6.7 | 7.4 | 8.0 | 7.8 | 7.4 |
| Ottawa | 4.8 | 5.7 | 5.7 | 6.6 | 6.8 |
| Western | 7.4 | 8.5 | 8.0 | 7.9 | 6.8 |
| Calgary | 4.5 | 4.4 | 4.6 | 4.7 | 4.9 |
| McMaster | NA | 3.4 | 3.5 | 4.0 | 4.3 |
| Montreal | 2.8 | 2.7 | 2.9 | 2.7 | 2.2 |

### Average article impact

Mean citations per article - Biomedical Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| Toronto | 12.86 |
| Ottawa | 12.13 |
| Alberta | 10.82 |
| Montreal | 9.16 |
| McGill | 8.94 |
| Western | 8.07 |
| McMaster | 6.74 |
| Manitoba | 6.50 |
| Saskatchewan | 6.34 |
| Dalhousie | 6.10 |
| Calgary | 4.73 |
| UBC | 3.68 |
| Waterloo | 1.71 |

Mean citations per article - Chemical and Materials Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| Toronto | 13.81 |
| Ottawa | 12.13 |
| Waterloo | 11.21 |
| Western | 10.61 |
| UBC | 9.45 |
| Laval | 9.32 |
| McMaster | 9.25 |
| Saskatchewan | 8.95 |
| Queens | 8.84 |
| Dalhousie | 8.75 |
| Alberta | 8.00 |
| Montreal | 7.93 |
| McGill | 7.46 |
| Calgary | 6.72 |

Mean citations per article - Civil Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| Montreal | 8.32 |
| McGill | 6.86 |
| Toronto | 6.56 |
| Laval | 6.56 |
| Western | 6.49 |
| Waterloo | 6.32 |
| UBC | 6.10 |
| McMaster | 5.87 |
| Saskatchewan | 5.70 |
| Queens | 5.58 |
| Alberta | 5.39 |
| Ottawa | 4.98 |
| Manitoba | 4.38 |
| Calgary | 4.37 |
| Dalhousie | 4.22 |

Mean citations per article - Electrical and Computer Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| Toronto | 9.97 |
| Alberta | 7.63 |
| Waterloo | 7.16 |
| UBC | 6.41 |
| Montreal | 5.99 |
| Western | 5.44 |
| Manitoba | 5.20 |
| Laval | 5.19 |
| McMaster | 5.10 |
| Queens | 4.85 |
| McGill | 4.66 |
| Ottawa | 4.26 |
| Calgary | 4.18 |
| Saskatchewan | 3.90 |
| Dalhousie | 2.34 |

Mean citations per article - Mechanical Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| Western | 14.29 |
| Toronto | 7.12 |
| Saskatchewan | 6.86 |
| Alberta | 6.67 |
| Queens | 6.51 |
| McGill | 6.27 |
| Waterloo | 6.23 |
| Manitoba | 6.19 |
| Ottawa | 5.91 |
| UBC | 5.89 |
| Calgary | 5.86 |
| Dalhousie | 5.60 |
| McMaster | 5.44 |
| Montreal | 4.87 |
| Laval | 4.36 |

Mean citations per article per school (matching depts only)

|  |  |
| --- | --- |
| School | Times Cited |
| Toronto | 9.74 |
| Western | 8.53 |
| Waterloo | 7.84 |
| Alberta | 7.32 |
| UBC | 7.10 |
| Queens | 6.94 |
| Laval | 6.94 |
| McMaster | 6.74 |
| Montreal | 6.72 |
| McGill | 6.55 |
| Saskatchewan | 6.48 |
| Ottawa | 5.96 |
| Manitoba | 5.60 |
| Calgary | 5.13 |
| Dalhousie | 5.10 |

## US comparator results

Comparisons were made with select US schools in the same manner.

### Publication Record

Articles per year - Biomedical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Michigan | 265 | 271 | 276 | 330 | 364 |
| GeorgiaTech | 236 | 284 | 315 | 288 | 350 |
| Duke | 274 | 296 | 303 | 326 | 324 |
| Wisconsin | 148 | 174 | 192 | 200 | 216 |
| ColoradoBoulder | 171 | 182 | 226 | 195 | 201 |
| UTAustin | 175 | 173 | 176 | 167 | 180 |
| Minnesota | 119 | 130 | 141 | 163 | 167 |
| Florida | 79 | 119 | 112 | 175 | 149 |
| CarnegieMellon | 92 | 82 | 119 | 111 | 114 |
| Alberta | 69 | 59 | 52 | 62 | 51 |
| IllinoisUC | 69 | 117 | 107 | 97 | NA |

Articles per year - Chemical and Materials Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| GeorgiaTech | 652 | 723 | 777 | 809 | 842 |
| Alberta | 317 | 363 | 375 | 408 | 442 |
| Michigan | 380 | 381 | 416 | 452 | 432 |
| UTAustin | 352 | 406 | 458 | 361 | 400 |
| Wisconsin | 314 | 276 | 294 | 294 | 342 |
| Florida | 343 | 309 | 276 | 294 | 305 |
| Minnesota | 232 | 213 | 245 | 232 | 301 |
| CarnegieMellon | 228 | 236 | 271 | 256 | 283 |
| ColoradoBoulder | 171 | 182 | 226 | 195 | 201 |
| Duke | 115 | 117 | 127 | 122 | 157 |
| IllinoisUC | 295 | 448 | 494 | 368 | NA |

Articles per year - Civil Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| UTAustin | 193 | 241 | 278 | 327 | 350 |
| Alberta | 172 | 196 | 232 | 288 | 300 |
| GeorgiaTech | 240 | 221 | 265 | 305 | 293 |
| ColoradoBoulder | 112 | 151 | 156 | 187 | 211 |
| Michigan | 83 | 106 | 106 | 129 | 159 |
| Florida | 130 | 117 | 139 | 112 | 145 |
| Wisconsin | 81 | 89 | 94 | 96 | 121 |
| Duke | 91 | 100 | 92 | 102 | 99 |
| CarnegieMellon | 77 | 73 | 95 | 80 | 87 |
| Minnesota | 135 | 151 | 122 | 75 | 58 |
| IllinoisUC | 190 | 290 | 342 | 255 | NA |

Articles per year - Electrical and Computer Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| GeorgiaTech | 648 | 702 | 693 | 735 | 724 |
| Michigan | 458 | 529 | 561 | 588 | 617 |
| Alberta | 371 | 391 | 384 | 418 | 473 |
| UTAustin | 469 | 483 | 451 | 409 | 391 |
| Duke | 195 | 267 | 321 | 370 | 378 |
| Minnesota | 230 | 239 | 262 | 281 | 316 |
| CarnegieMellon | 204 | 195 | 235 | 287 | 293 |
| Florida | 267 | 242 | 252 | 295 | 290 |
| Wisconsin | 186 | 198 | 237 | 240 | 261 |
| ColoradoBoulder | 149 | 180 | 180 | 193 | 202 |
| IllinoisUC | 285 | 540 | 492 | 405 | NA |

Articles per year - Mechanical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| GeorgiaTech | 476 | 451 | 566 | 518 | 656 |
| Michigan | 377 | 444 | 446 | 419 | 513 |
| Alberta | 200 | 191 | 218 | 233 | 257 |
| UTAustin | 253 | 236 | 239 | 215 | 242 |
| Minnesota | 215 | 169 | 200 | 204 | 235 |
| Florida | 231 | 180 | 212 | 237 | 218 |
| ColoradoBoulder | 161 | 171 | 162 | 191 | 204 |
| Duke | 115 | 117 | 127 | 122 | 157 |
| CarnegieMellon | 127 | 134 | 164 | 150 | 144 |
| Wisconsin | 76 | 75 | 114 | 99 | 97 |
| IllinoisUC | 212 | 298 | 357 | 228 | NA |

### Research output per faculty

Articles per faculty member per year - Chemical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| UTAustin | 14.7 | 16.9 | 19.1 | 14.4 | 16.0 |
| GeorgiaTech | 9.3 | 10.6 | 12.1 | 12.8 | 13.2 |
| Wisconsin | 9.5 | 8.4 | 8.4 | 8.9 | 9.5 |
| ColoradoBoulder | 7.4 | 8.7 | 10.8 | 8.5 | 9.1 |
| Alberta | 6.3 | 7.4 | 7.8 | 8.3 | 8.8 |
| Minnesota | 7.7 | 6.9 | 7.2 | 6.6 | 8.6 |
| Michigan | 8.3 | 8.3 | 9.2 | 8.1 | 7.4 |
| CarnegieMellon | 6.3 | 6.2 | 6.9 | 6.9 | 6.7 |
| Florida | 7.0 | 6.1 | 5.8 | 6.1 | 6.6 |
| Duke | 5.5 | 4.9 | 4.9 | 4.7 | 6.0 |
| IllinoisUC | 8.0 | 12.4 | 13.0 | 9.0 | NA |

Articles per faculty member per year - Civil Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| UTAustin | 8.0 | 10.0 | 11.6 | 13.1 | 14.0 |
| ColoradoBoulder | 4.9 | 7.2 | 7.4 | 8.1 | 9.6 |
| Alberta | 3.4 | 4.0 | 4.8 | 5.9 | 6.0 |
| GeorgiaTech | 3.4 | 3.2 | 4.1 | 4.8 | 4.6 |
| Duke | 4.3 | 4.2 | 3.5 | 3.9 | 3.8 |
| Wisconsin | 2.5 | 2.7 | 2.7 | 2.9 | 3.4 |
| Florida | 2.7 | 2.3 | 2.9 | 2.3 | 3.2 |
| Michigan | 1.8 | 2.3 | 2.4 | 2.3 | 2.7 |
| CarnegieMellon | 2.1 | 1.9 | 2.4 | 2.2 | 2.1 |
| Minnesota | 4.5 | 4.9 | 3.6 | 2.1 | 1.7 |
| IllinoisUC | 5.1 | 8.1 | 9.0 | 6.2 | NA |

Articles per faculty member per year - Electrical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Duke | 6.5 | 9.2 | 10.4 | 11.6 | 11.8 |
| Alberta | 6.7 | 7.1 | 7.1 | 8.2 | 9.1 |
| Michigan | 7.8 | 8.8 | 8.9 | 9.2 | 8.8 |
| Minnesota | 5.9 | 5.6 | 5.8 | 6.2 | 7.5 |
| ColoradoBoulder | 6.5 | 8.2 | 6.7 | 6.9 | 7.0 |
| GeorgiaTech | 6.2 | 6.4 | 6.4 | 6.6 | 6.8 |
| CarnegieMellon | 4.1 | 4.3 | 5.2 | 5.9 | 6.7 |
| UTAustin | 7.2 | 7.3 | 7.6 | 6.8 | 6.6 |
| Wisconsin | 4.9 | 5.2 | 6.4 | 6.5 | 6.4 |
| Florida | 6.8 | 5.6 | 5.7 | 5.8 | 6.0 |
| IllinoisUC | 3.7 | 7.0 | 6.3 | 5.1 | NA |

Articles per faculty member per year - Mechanical Engineering

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Michigan | 5.9 | 7.2 | 7.4 | 6.8 | 8.4 |
| GeorgiaTech | 5.6 | 5.0 | 6.1 | 5.4 | 6.8 |
| ColoradoBoulder | 6.4 | 6.3 | 5.6 | 6.2 | 6.2 |
| Duke | 5.5 | 4.9 | 4.9 | 4.7 | 6.0 |
| Alberta | 5.9 | 5.0 | 5.7 | 5.3 | 5.7 |
| Minnesota | 5.5 | 4.6 | 5.3 | 5.1 | 5.6 |
| CarnegieMellon | 5.5 | 5.6 | 9.1 | 5.8 | 5.3 |
| Florida | 4.9 | 4.0 | 4.2 | 4.9 | 4.5 |
| UTAustin | 4.1 | 3.7 | 3.6 | 3.5 | 3.8 |
| Wisconsin | 2.4 | 2.3 | 3.3 | 3.2 | 3.1 |
| IllinoisUC | 4.3 | 6.1 | 6.7 | 4.1 | NA |

Articles per faculty member per year, Faculty-Level

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| School | 2012 | 2013 | 2014 | 2015 | 2016 |
| Alberta | 7.6 | 8.0 | 8.6 | 9.4 | 10.0 |
| ColoradoBoulder | 8.4 | 9.8 | 9.4 | 9.3 | 9.7 |
| Michigan | 6.6 | 7.4 | 7.6 | 7.6 | 8.0 |
| GeorgiaTech | 6.4 | 6.5 | 7.2 | 7.4 | 7.9 |
| Duke | 5.7 | 6.3 | 6.7 | 7.2 | 7.8 |
| Minnesota | 7.5 | 7.0 | 7.1 | 6.6 | 7.6 |
| UTAustin | 5.7 | 6.1 | 6.5 | 5.9 | 6.3 |
| CarnegieMellon | 5.0 | 5.1 | 6.2 | 5.9 | 6.0 |
| Wisconsin | 5.1 | 4.9 | 5.1 | 5.7 | 6.0 |
| Florida | 5.5 | 4.7 | 4.8 | 5.0 | 5.4 |
| IllinoisUC | 4.6 | 7.3 | 7.6 | 5.5 | NA |

### Average article impact

Mean citations per article - Biomedical Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| IllinoisUC | 17.58 |
| GeorgiaTech | 15.72 |
| ColoradoBoulder | 15.19 |
| UTAustin | 14.91 |
| Duke | 14.34 |
| Wisconsin | 12.22 |
| Michigan | 12.21 |
| Alberta | 10.82 |
| CarnegieMellon | 10.14 |
| Florida | 9.12 |
| Minnesota | 8.28 |

Mean citations per article - Chemical and Materials Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| UTAustin | 24.80 |
| IllinoisUC | 21.66 |
| GeorgiaTech | 20.33 |
| Michigan | 16.21 |
| Wisconsin | 15.91 |
| ColoradoBoulder | 15.19 |
| Duke | 13.73 |
| Florida | 13.30 |
| Minnesota | 13.26 |
| CarnegieMellon | 10.70 |
| Alberta | 8.00 |

Mean citations per article - Civil Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| Duke | 13.22 |
| CarnegieMellon | 11.33 |
| IllinoisUC | 10.04 |
| GeorgiaTech | 9.47 |
| Minnesota | 9.45 |
| Michigan | 8.55 |
| ColoradoBoulder | 7.82 |
| Wisconsin | 7.60 |
| Florida | 6.05 |
| UTAustin | 5.96 |
| Alberta | 5.39 |

Mean citations per article - Electrical and Computer Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| UTAustin | 14.76 |
| ColoradoBoulder | 12.74 |
| IllinoisUC | 11.59 |
| Minnesota | 8.78 |
| Duke | 8.30 |
| Michigan | 8.26 |
| Alberta | 7.63 |
| Wisconsin | 7.43 |
| Florida | 6.25 |
| GeorgiaTech | 6.22 |
| CarnegieMellon | 5.48 |

Mean citations per article - Mechanical Engineering

|  |  |
| --- | --- |
| School | Times Cited |
| UTAustin | 18.72 |
| Duke | 13.73 |
| IllinoisUC | 12.73 |
| ColoradoBoulder | 11.86 |
| CarnegieMellon | 10.19 |
| Michigan | 8.88 |
| GeorgiaTech | 8.15 |
| Minnesota | 7.60 |
| Wisconsin | 7.58 |
| Florida | 6.81 |
| Alberta | 6.67 |

Mean citations per article per school (matching departments only)

|  |  |
| --- | --- |
| School | Times Cited |
| UTAustin | 14.23 |
| IllinoisUC | 13.56 |
| GeorgiaTech | 12.26 |
| ColoradoBoulder | 11.98 |
| Duke | 11.76 |
| Wisconsin | 11.40 |
| Michigan | 10.12 |
| Minnesota | 9.47 |
| CarnegieMellon | 8.74 |
| Florida | 8.49 |
| Alberta | 7.32 |

## References

[1] M. Aria, C. Cuccurullo, &Nbsp;bibliometrix: An r-tool for comprehensive science mapping analysis, Journal of Informetrics. 11 (2017) 959–975. <https://doi.org/10.1016/j.joi.2017.08.007>.