SKYLINE-BASED UNIVERSITY RANKINGS

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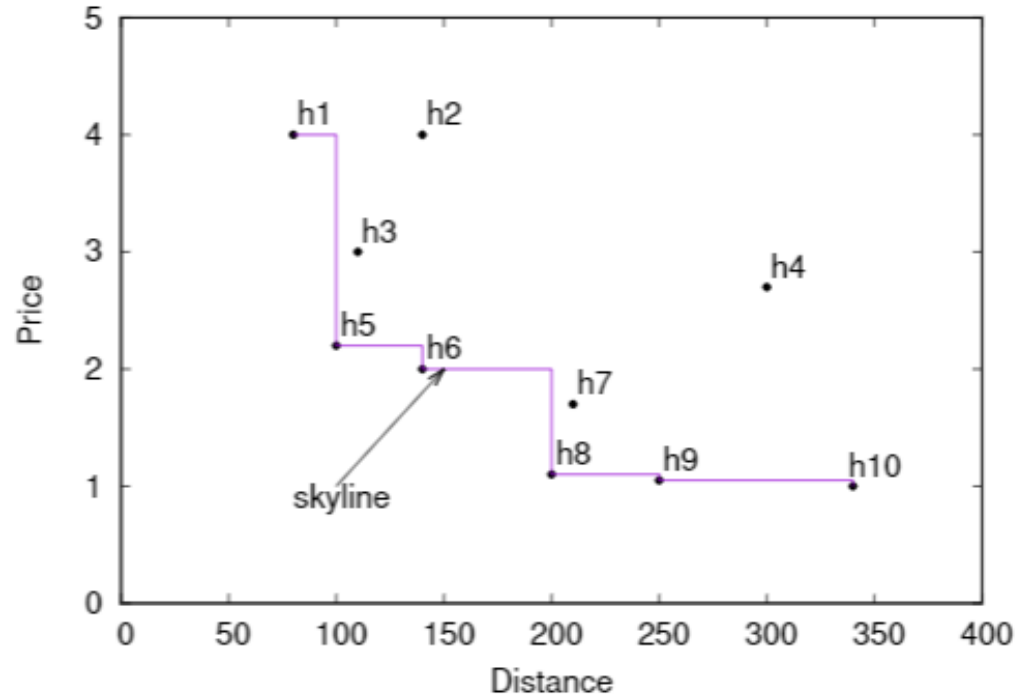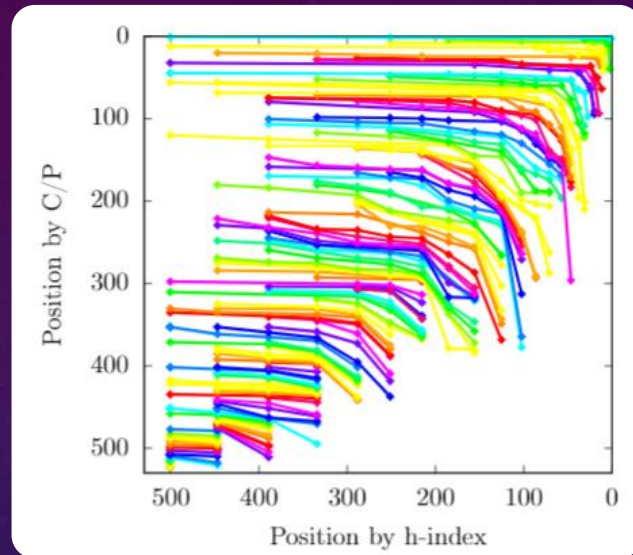
UNIVERSITY RANKINGS

- Popular University Rankings
  - ARWU (Academic Ranking of World Universities)
  - QS (Quacquarelli Symonds)
  - THE (Times Higher Education World University Rankings)
  - Webometrics Ranking of World Universities
  - https://en.wikipedia.org/wiki/College_and_university_rankings
- Different indicators used in each ranking method
- Drawbacks
  - provide nonsense absolute rankings
  - not statistically robust
  - not stable
  - not reproducible

SKYLINE OPERATOR

Hotel	Price	Distance
h1	80	4
h2	140	4
h3	110	3
h4	300	2.7
h5	100	2.2
h6	140	2
h7	210	1.7
h8	200	1.1
h9	250	1.05
h10	340	1

RAINBOW RANKING FOR A DATASET OF SCIENTISTS

$$RR(a) = 100 - 100 \times \frac{|A_{above}(a)| + |A_{tie}(a)|/2}{|A|}$$

DATASET

- Microsoft Academic Search database
  - 77,080,039 publications
  - 84,818,728 distinct researchers
  - 539 members of 19 CS faculties of 17 major Greek universities
  - all authors with affiliation in the aforementioned 17 Greek universities
- Dimensions of RR-index
  - Cit, Cit-5, H-index, H-index-5, i10, i10-5

RAINBOW RANKING OF AUTHORS

Author	RR-level	RR-index	Cit	h	i10	Cit-5	h-5	i10-5
Nikos Hatziargyriou	1	99.81	11009	42	115	5501	26	73
George Karagiannidis	1	99.81	8079	49	155	3856	34	98
Ioannis Pitas	1	99.81	12568	55	226	2774	25	77
K.A. Antonopoulos	2	98.77	1744	23	38	948	20	26
Minos Garofalakis	2	98.77	4824	40	80	871	18	29
Yannis Manolopoulos	2	98.77	5651	33	104	1569	17	40
Petros Maragos	2	98.77	7499	42	122	1500	17	47
Konstantina Nikita	2	98.77	3405	29	98	1246	18	34
John Psarras	2	98.77	3212	30	89	1342	19	39
Grigorios Tsoumakas	2	98.77	3383	24	38	1785	18	28
Ioannis Vlahavas	2	98.77	3468	28	64	1560	18	32
Aggelos Bletsas	3	96.98	4285	19	34	1205	13	21
Pavlos Georgilakis	3	96.98	2367	25	57	1439	14	29
Aggelos Kiayias	3	96.98	5862	25	33	554	14	16
Stefanos Kollias	3	96.98	4783	31	95	1007	14	19
Aristidis Likas	3	96.98	4068	34	64	1350	17	32
Sotiris Nikoletseas	3	96.98	2331	26	75	679	13	21
Stavros Papathanassiou	3	96.98	2620	25	41	1286	19	27
Ioannis Pratikakis	3	96.98	2729	28	55	1153	19	38
Anastasios Tefas	3	96.98	2675	26	64	1178	17	37
Sergios Theodoridis	3	96.98	3535	27	72	1128	16	30
Yannis Theodoridis	3	96.98	3920	31	65	1095	17	32

RAINBOW RANKING OF CS FACULTIES

Fac-Univ	#Staff	RR-level	RR-index	Cit	h	$i10$	Cit-5	h-5	$i10$-5
ece-ntua	72	1	100	91077	105	1822	30979	60	421
di-uoa	40	2	92.11	46897	88	899	12066	40	184
inf-auth	30	2	92.11	53740	98	877	17588	50	197
csd-uoc	24	3	78.95	29925	77	552	8188	36	120
ece-tuc	25	3	78.95	28858	75	432	8902	38	115
ee-auth	31	3	78.95	28842	72	612	10542	44	191
ee-duth	38	4	65.79	22106	63	513	8360	34	111
inf-aueb	27	4	65.79	25623	72	497	8128	35	108
ceid-upatras	26	5	52.63	17740	52	464	4654	23	36
cs-uoi	28	5	52.63	23768	70	426	6934	35	105
ece-upatras	40	5	52.63	20764	57	462	6068	26	60
dit-uop	25	6	36.84	13736	53	315	4214	27	55
icsd-aegean	22	6	36.84	10243	41	249	4848	32	60
inf-unipi	22	6	36.84	14072	56	305	5370	31	84
ainf-uom	35	7	26.32	9040	40	206	4204	26	66
ece-uth	21	8	21.05	7687	38	161	2629	23	44
icc-uniwa	36	9	10.53	4673	31	105	1952	18	28
iec-ihu	29	9	10.53	5287	31	115	1705	18	28
inf-ionio	16	9	10.53	4460	34	99	2031	20	22

RAINBOW RANKING OF GREEK UNIVERSITIES

University	RR-level	RR-index	Cit	h	i10	Cit-5	h-5	i10-5
uoa	1	100	7078897	841	61172	3016544	552	24711
auth	2	91.18	3356467	548	32761	1578225	368	11249
ntua	2	91.18	2663388	498	19926	1416386	378	6886
uoi	3	79.41	2156665	513	20445	952141	344	8387
uoc	3	79.41	2125246	466	24320	805642	264	8769
upatras	4	70.59	1773229	376	23733	679132	216	7062
duth	5	61.76	633733	270	7395	283990	164	2901
uth	5	61.76	659359	275	8749	293147	165	2898
aegean	6	50.00	342804	205	5118	173323	151	1907
tuc	6	50.00	372983	226	5074	149161	136	1858
aueb	7	41.18	246569	183	3701	95860	107	1218
unipi	8	35.29	128987	138	2121	55475	84	660
uom	9	26.47	83994	111	1627	38222	70	456
uop	9	26.47	60460	101	1119	27508	72	434
uniwa	10	17.65	67113	100	1238	31924	62	301
ihu	11	11.76	18160	67	340	9666	47	150
ionio	12	5.88	13776	48	252	6859	33	42

CONCLUSIONS

Our method for ranking universities

- provides ranked sets instead of ranked list
- does not use arbitrary weights
- is fully transparent and reproducible
- customizable to any set of KPIs

Thank you for your attention !