

Dataset View - Akkodis

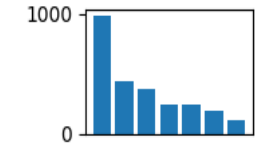
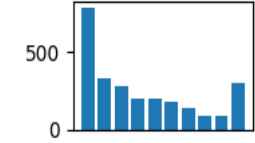
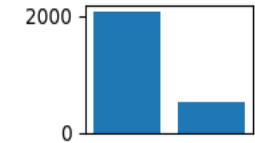
Dataset Head

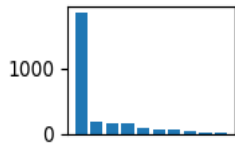
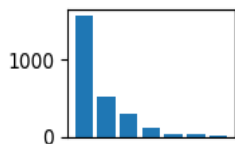
Age Bin	Sensitive	Sex	Study Area	Study Title	Sector	Job Family Hiring	Job Title Hiring	Technical Skills	Communication	Maturity	Dynamism	Mobility	English	European Residence	Italian Residence	Status
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Automotive	Engineering	Consultant	3	2	3	3	2	4	Yes	Yes	Positive
40 - 45	Female 40 - 45 Italian	Female	Engineering	Five-year degree	Aeronautics	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
36 - 40	Male 36 - 40 Italian	Male	Engineering	Five-year degree	Consulting	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Positive
> 45	Male > 45 Italian	Male	Law	Five-year degree	Telecom	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Automotive	Not Specified	Not Specified	3	2	2	3	1	1	Yes	Yes	Negative
36 - 40	Male 36 - 40 Italian	Male	Engineering	Five-year degree	Telecom	Not Specified	Not Specified	2	2	3	3	3	3	Yes	Yes	Negative
31 - 35	Female 31 - 35 Italian	Female	Economic	Five-year degree	Others	Support	Support Advanced	2	2	2	2	2	2	Yes	Yes	Positive
36 - 40	Male 36 - 40 Italian	Male	Engineering	Five-year degree	Space	Not Specified	Not Specified	3	3	3	3	2	2	Yes	Yes	Negative
36 - 40	Male 36 - 40 Italian	Male	Scientific Field	Five-year degree	Life sciences	Engineering	Consultant	2	2	3	3	1	2	Yes	Yes	Positive
40 - 45	Male 40 - 45 Italian	Male	Engineering	Five-year degree	Unemployed	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
36 - 40	Male 36 - 40 Italian	Male	Engineering	Five-year degree	Consulting	Engineering	Consultant	3	2	3	3	3	3	Yes	Yes	Positive
36 - 40	Female 36 - 40 Italian	Female	Engineering	Doctorate	Others	Engineering	Qualified Consultant	2	2	2	2	2	3	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Others	Not Specified	Not Specified	2	2	2	2	1	3	Yes	Yes	Negative
40 - 45	Male 40 - 45 Italian	Male	Engineering	Five-year degree	Others	Engineering	Qualified Consultant	3	2	2	2	2	2	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Consulting	Engineering	Consultant	2	2	2	2	2	3	Yes	Yes	Positive

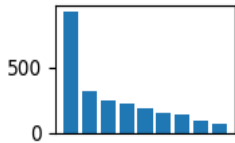
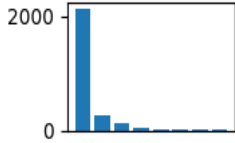
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Telecom	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Others	Engineering	Consultant	3	3	3	2	2	3	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Consulting	Engineering	Consultant	3	3	3	2	2	2	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Aeronautics	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Positive
31 - 35	Female 31 - 35 Italian	Female	Engineering	Five-year degree	Unemployed	Engineering	Consultant	2	2	2	2	2	3	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Others	Engineering	Consultant	3	3	2	2	2	2	Yes	Yes	Positive
31 - 35	Male 31 - 35 Non-Italian	Male	Engineering	Five-year degree	Space	Engineering	Consultant	2	2	2	2	2	3	Yes	No	Positive
> 45	Male > 45 Italian	Male	Scientific Field	High school graduation	Railway	Engineering	Team Leader	3	2	3	2	2	2	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Others	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Defence	Engineering	Consultant	3	3	2	3	3	3	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Unemployed	Not Specified	Not Specified	3	3	2	1	1	3	Yes	Yes	Positive
31 - 35	Female 31 - 35 Italian	Female	Engineering	Five-year degree	Life sciences	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Three-year degree	Unemployed	Tech Consulting & Solutions	Advanced Consultant	3	2	2	3	1	3	Yes	Yes	Positive
26 - 30	Female 26 - 30 Italian	Female	Engineering	Three-year degree	Unemployed	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Naval	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Positive

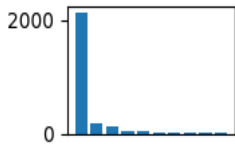
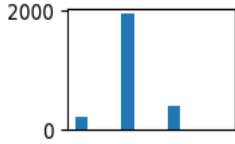
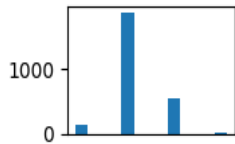
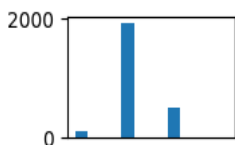
Features View

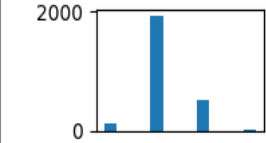
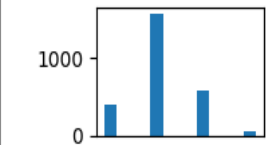
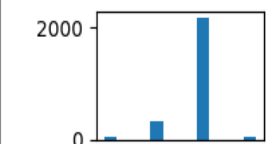
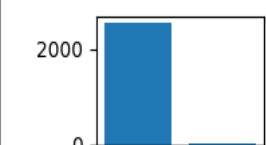
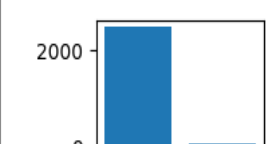
Stats

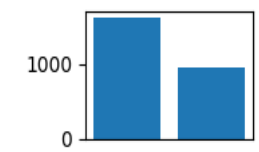
feature	missing_values	min	max	mean	std	1st_percentile	2nd_percentile	3rd_percentile	type	values	distribution	sensitive	target
Age Bin	0								categorical	20 - 25 , 26 - 30 , 31 - 35 , 36 - 40 , 40 - 45 , < 20 , > 45		False	False
Sensitive	0								categorical	Female 20 - 25 Italian, Female 26 - 30 Italian, Female 26 - 30 Non-Italian, Female 31 - 35 Italian, Female 31 - 35 Non-Italian, Female 36 - 40 Italian...		True	False
Sex	0								binary	Female, Male		False	False

feature	missing_values	min	max	mean	std	1st_percentile	2nd_percentile	3rd_percentile	type	values	distribution	sensitive	target
Study Area	0								categorical	Economic, Engineering, Informatics, Law, Linguistics, Medical Field, NO COLLEGE, Other, Other Humanities Subjects, Scientific Field		False	False
Study Title	0								categorical	Doctorate, Five-year degree, High school graduation, Middle school diploma, Professional qualification, Three-year degree, master's degree		False	False

feature	missing_values	min	max	mean	std	1st_percentile	2nd_percentile	3rd_percentile	type	values	distribution	sensitive	target
Sector	0								categorical	Aeronautics, Automotive, Consulting, Defence, Energy, Life sciences, Machining - Heavy Industry, Naval, Oil and Gas, Others, Railway, Services and Inf...		False	False
Job Family Hiring	0								categorical	Business & Sales, Business Management & Sales, Enabling Function, Engineering, Not Specified, Support, Talent Acquisition, Tech Consulting & Solutions		False	False

feature	missing_values	min	max	mean	std	1st_percentile	2nd_percentile	3rd_percentile	type	values	distribution	sensitive	target
Job Title Hiring	0								categorical	???, Advanced Business Manager, Advanced Consultant, Business Manager, Business Unit Director, Consultant, Junior Business Manager, Junior Consultant,...		False	False
Technical Skills	0	1.0	4.0	2.086754453911696	0.5165104362292585	2.0	2.0	2.0	integer	1, 2, 3, 4		False	False
Communication	0	1.0	4.0	2.171185127807901	0.5050447456244623	2.0	2.0	2.0	integer	1, 2, 3, 4		False	False
Maturity	0	1.0	4.0	2.1638264910921765	0.4915801697156381	2.0	2.0	2.0	integer	1, 2, 3, 4		False	False

feature	missing_values	min	max	mean	std	1st_percentile	2nd_percentile	3rd_percentile	type	values	distribution	sensitive	target
Dynamism	0	1.0	4.0	2.16266 4601084 4306	0.49235 9628420 1219	2.0	2.0	2.0	integer	1, 2, 3, 4		False	False
Mobility	0	1.0	4.0	2.10224 6320681 642	0.65550 0663798 4702	2.0	2.0	2.0	integer	1, 2, 3, 4		False	False
English	0	1.0	4.0	2.84972 8892331 526	0.44438 6752186 6916	3.0	3.0	3.0	integer	1, 2, 3, 4		False	False
European Residence	0								binary	No, Yes		False	False
Italian Residence	0								binary	No, Yes		False	False

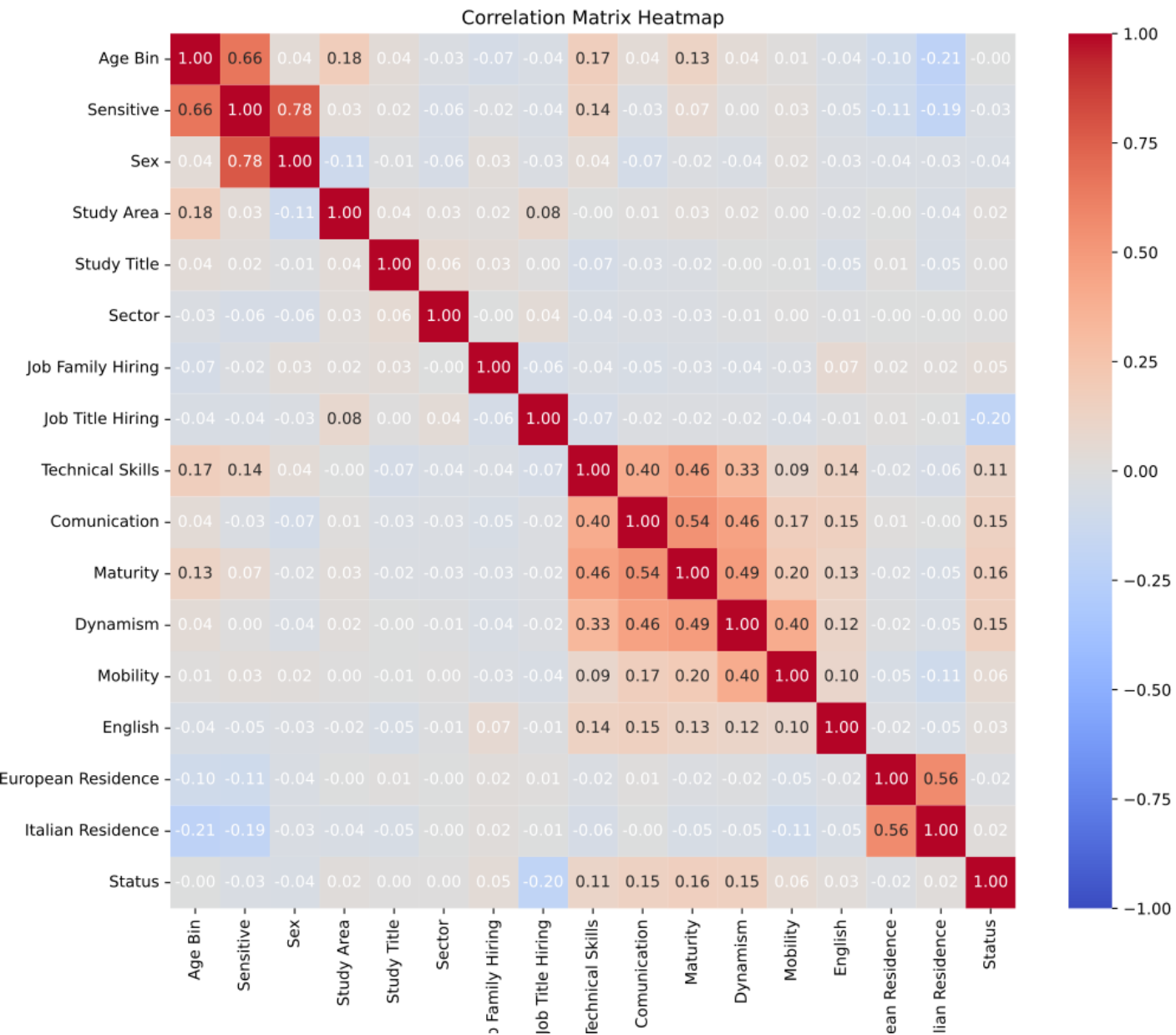
feature	missing_values	min	max	mean	std	1st_percentile	2nd_percentile	3rd_percentile	type	values	distribution	sensitive	target
Status	0								binary	Negative, Positive		False	True

Features

Field Name	drop	sensitive	target
Age Bin	x	x	x
Sensitive	x	✓	x
Sex	x	x	x
Study Area	x	x	x
Study Title	x	x	x
Sector	x	x	x
Job Family Hiring	x	x	x
Job Title Hiring	x	x	x
Technical Skills	x	x	x
Comunication	x	x	x
Maturity	x	x	x
Dynamism	x	x	x
Mobility	x	x	x
English	x	x	x
European Residence	x	x	x
Italian Residence	x	x	x
Status	x	x	✓

Proxies

Correlation Matrix



Suggested Proxies

Sensitive

	Age Bin	Sex	Study Area	Study Title	Sector	Job Family Hiring
correlation	66.06%	77.68%	3.20%	2.30%	-5.81%	-1.89%
suggested_proxy	✗	✗	✗	✗	✗	✗

Sensitive

	Job Title Hiring	Technical Skills	Comunication	Maturity	Dynamism	Mobility
correlation	-4.39%	13.87%	-3.07%	6.72%	0.02%	2.57%
suggested_proxy	✗	✗	✗	✗	✗	✗

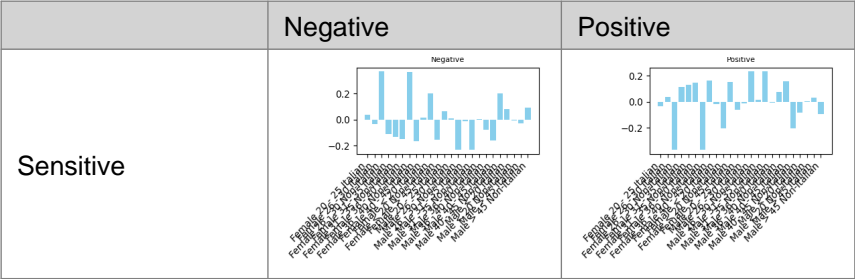
Sensitive

	English	European Residence	Italian Residence
correlation	-4.61%	-10.78%	-19.12%
suggested_proxy	✗	✗	✗

Detection

Selected Metrics

StatisticalParityDifference



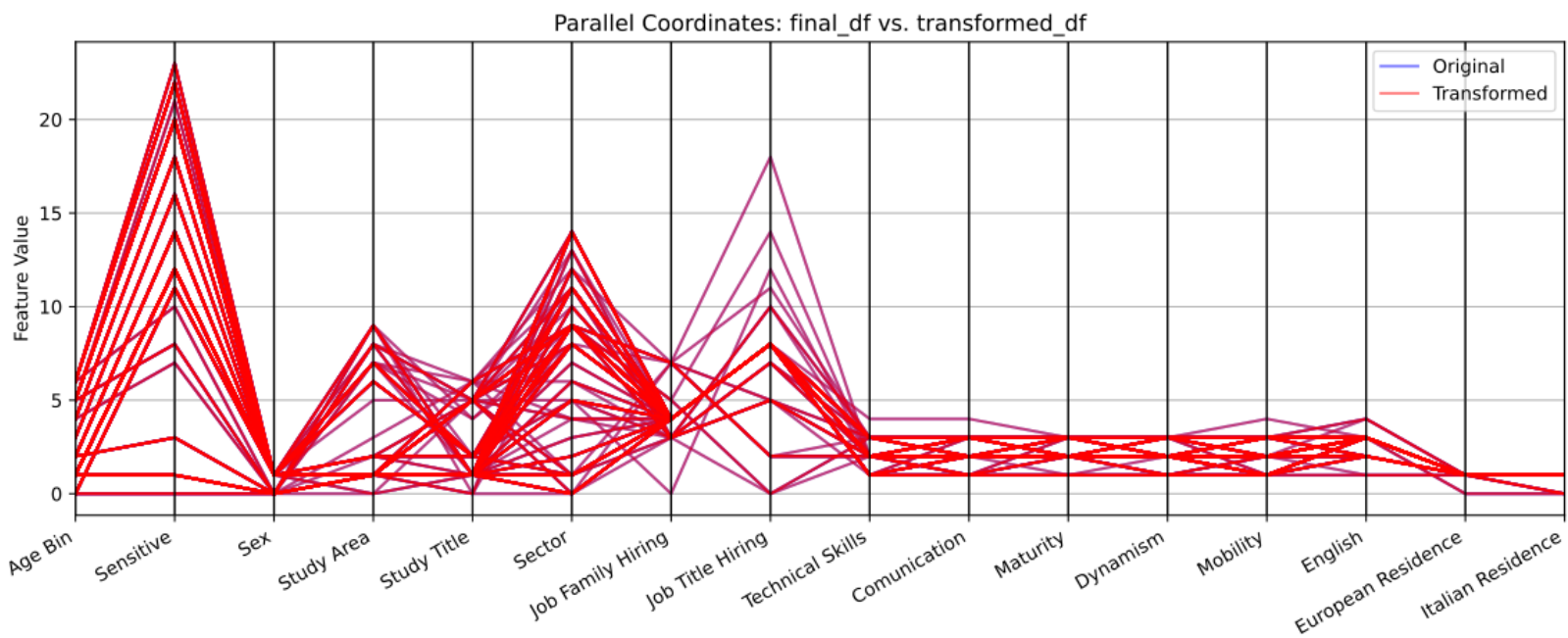
Data Mitigation

Preprocessing

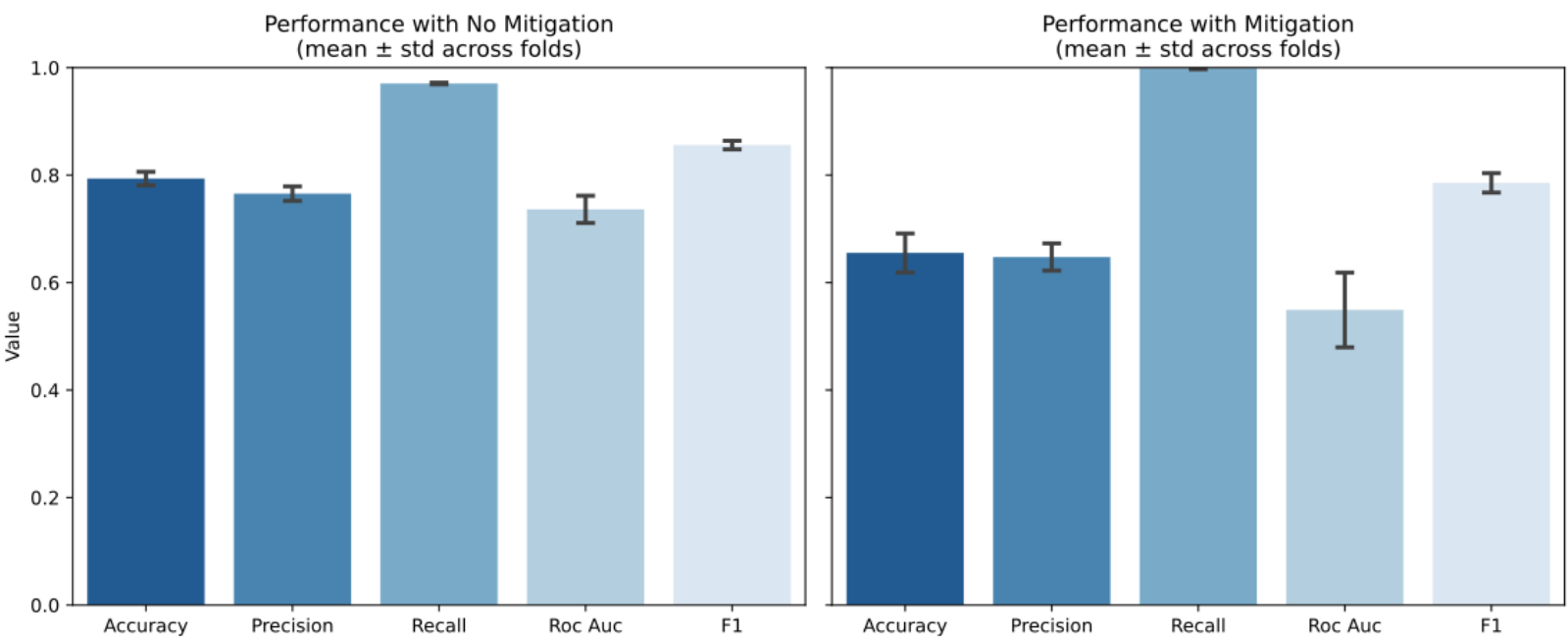
\$algorithm	k	Ax	Ay	Az	random_state	hidden_layers	hidden_dim	epochs
LearnedFairRepresentations	5	1.00%	1	50	42	1	8	100

Data Mitigation Results

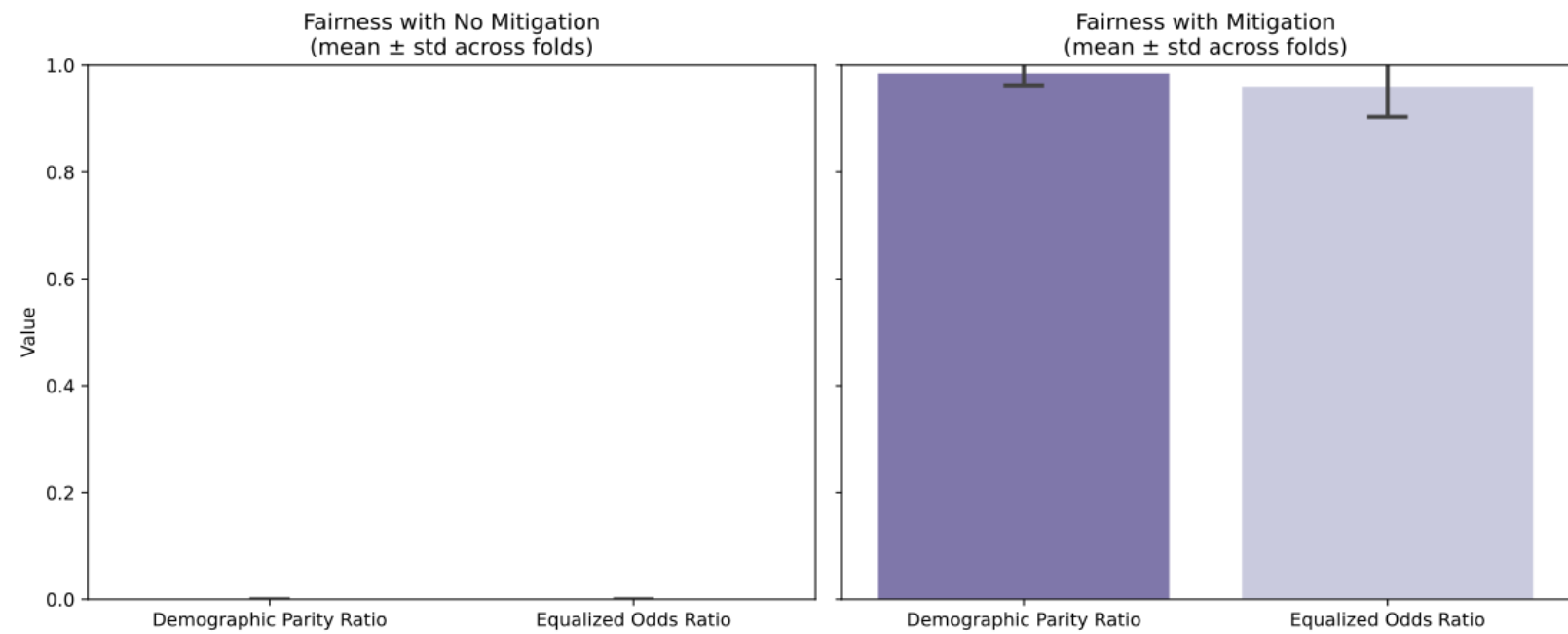
Preprocessing Plot



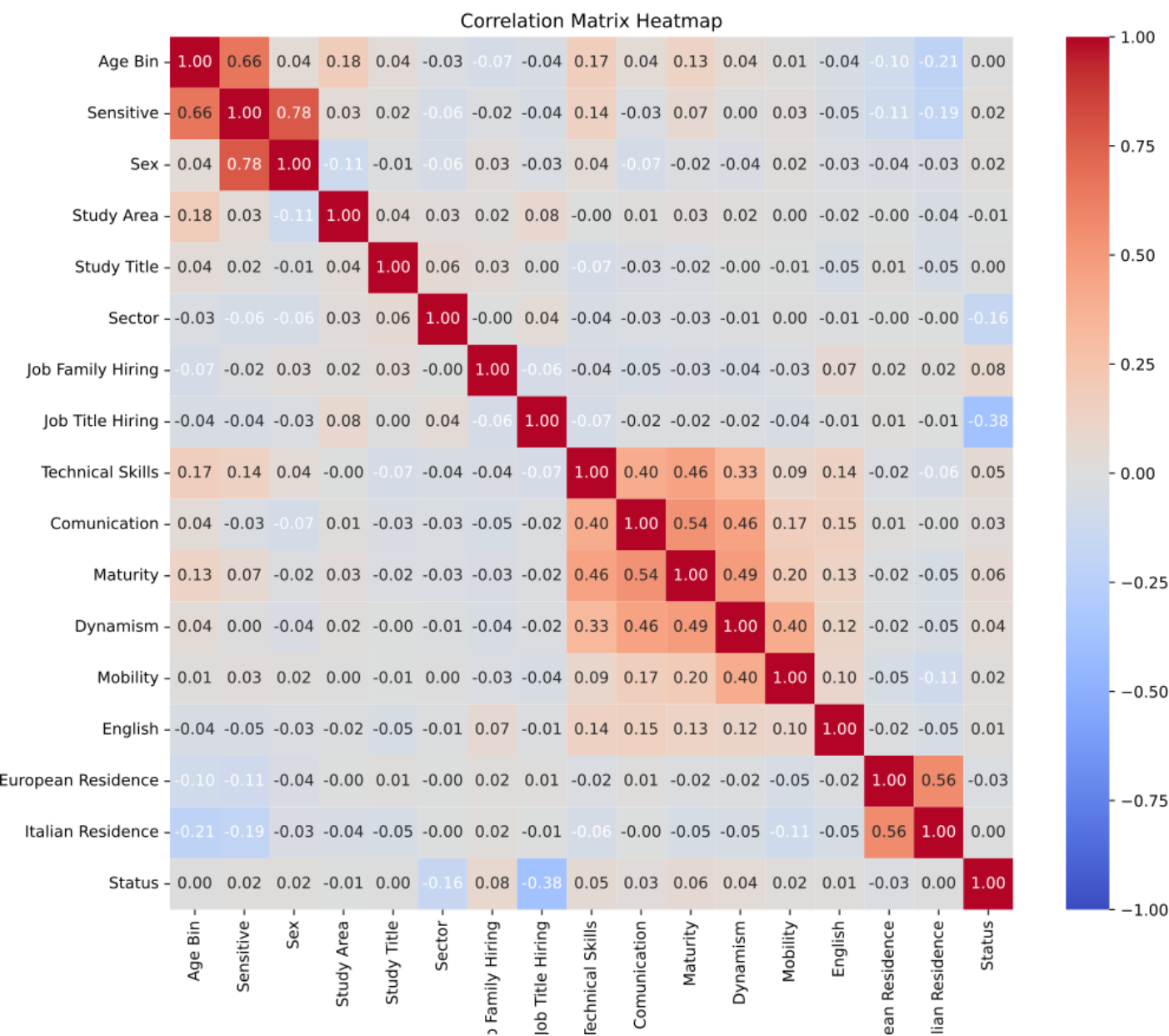
Performance Plot



Fairness Plot



Correlation Matrix



Dataset Head

Age Bin	Sensitive	Sex	Study Area	Study Title	Sector	Job Family Hiring	Job Title Hiring	Technical Skills	Communication	Maturity	Dynamism	Mobility	English	European Residence	Italian Residence	Status
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Automotive	Engineering	Consultant	3	2	3	3	2	4	Yes	Yes	Positive
40 - 45	Female 40 - 45 Italian	Female	Engineering	Five-year degree	Aeronautics	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
36 - 40	Male 36 - 40 Italian	Male	Engineering	Five-year degree	Consulting	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
> 45	Male > 45 Italian	Male	Law	Five-year degree	Telecom	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Automotive	Not Specified	Not Specified	3	2	2	3	1	1	Yes	Yes	Negative
36 - 40	Male 36 - 40 Italian	Male	Engineering	Five-year degree	Telecom	Not Specified	Not Specified	2	2	3	3	3	3	Yes	Yes	Negative
31 - 35	Female 31 - 35 Italian	Female	Economic	Five-year degree	Others	Support	Support Advanced	2	2	2	2	2	2	Yes	Yes	Negative
36 - 40	Male 36 - 40 Italian	Male	Engineering	Five-year degree	Space	Not Specified	Not Specified	3	3	3	3	2	2	Yes	Yes	Negative
36 - 40	Male 36 - 40 Italian	Male	Scientific Field	Five-year degree	Life sciences	Engineering	Consultant	2	2	3	3	1	2	Yes	Yes	Negative
40 - 45	Male 40 - 45 Italian	Male	Engineering	Five-year degree	Unemployed	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
36 - 40	Male 36 - 40 Italian	Male	Engineering	Five-year degree	Consulting	Engineering	Consultant	3	2	3	3	3	3	Yes	Yes	Positive
36 - 40	Female 36 - 40 Italian	Female	Engineering	Doctorate	Others	Engineering	Qualified Consultant	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Others	Not Specified	Not Specified	2	2	2	2	1	3	Yes	Yes	Negative
40 - 45	Male 40 - 45 Italian	Male	Engineering	Five-year degree	Others	Engineering	Qualified Consultant	3	2	2	2	2	2	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Consulting	Engineering	Consultant	2	2	2	2	2	3	Yes	Yes	Positive

31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Telecom	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Others	Engineering	Consultant	3	3	3	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Consulting	Engineering	Consultant	3	3	3	2	2	2	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Aeronautics	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Female 31 - 35 Italian	Female	Engineering	Five-year degree	Unemployed	Engineering	Consultant	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Others	Engineering	Consultant	3	3	2	2	2	2	Yes	Yes	Negative
31 - 35	Male 31 - 35 Non-Italian	Male	Engineering	Five-year degree	Space	Engineering	Consultant	2	2	2	2	2	3	Yes	No	Negative
> 45	Male > 45 Italian	Male	Scientific Field	High school graduation	Railway	Engineering	Team Leader	3	2	3	2	2	2	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Others	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Defence	Engineering	Consultant	3	3	2	3	3	3	Yes	Yes	Positive
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Unemployed	Not Specified	Not Specified	3	3	2	1	1	3	Yes	Yes	Negative
31 - 35	Female 31 - 35 Italian	Female	Engineering	Five-year degree	Life sciences	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Three-year degree	Unemployed	Tech Consulting & Solutions	Advanced Consultant	3	2	2	3	1	3	Yes	Yes	Positive
26 - 30	Female 26 - 30 Italian	Female	Engineering	Three-year degree	Unemployed	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative
31 - 35	Male 31 - 35 Italian	Male	Engineering	Five-year degree	Naval	Not Specified	Not Specified	2	2	2	2	2	3	Yes	Yes	Negative

Selected Metrics

StatisticalParityDifference

