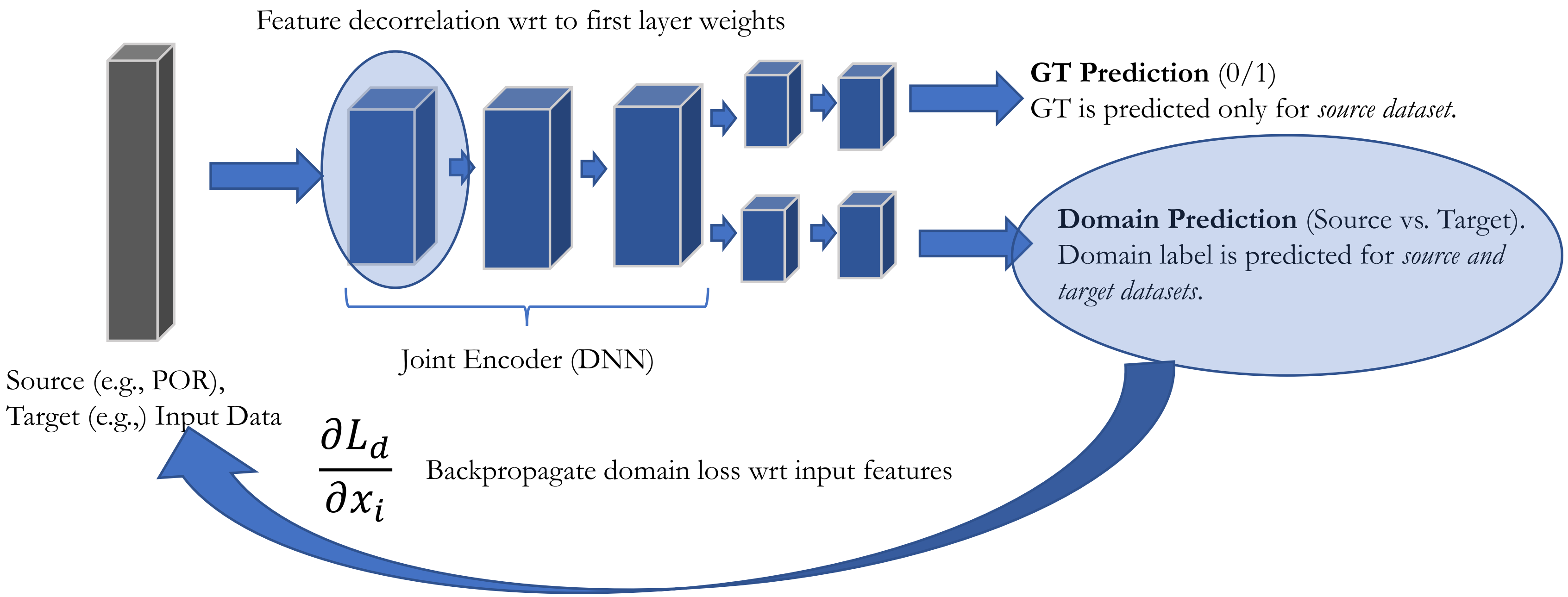
Intel Labs: Anthony Rhodes

<u>Decorrelated Distribution Shift Feature Ranking (DDSFR)</u>

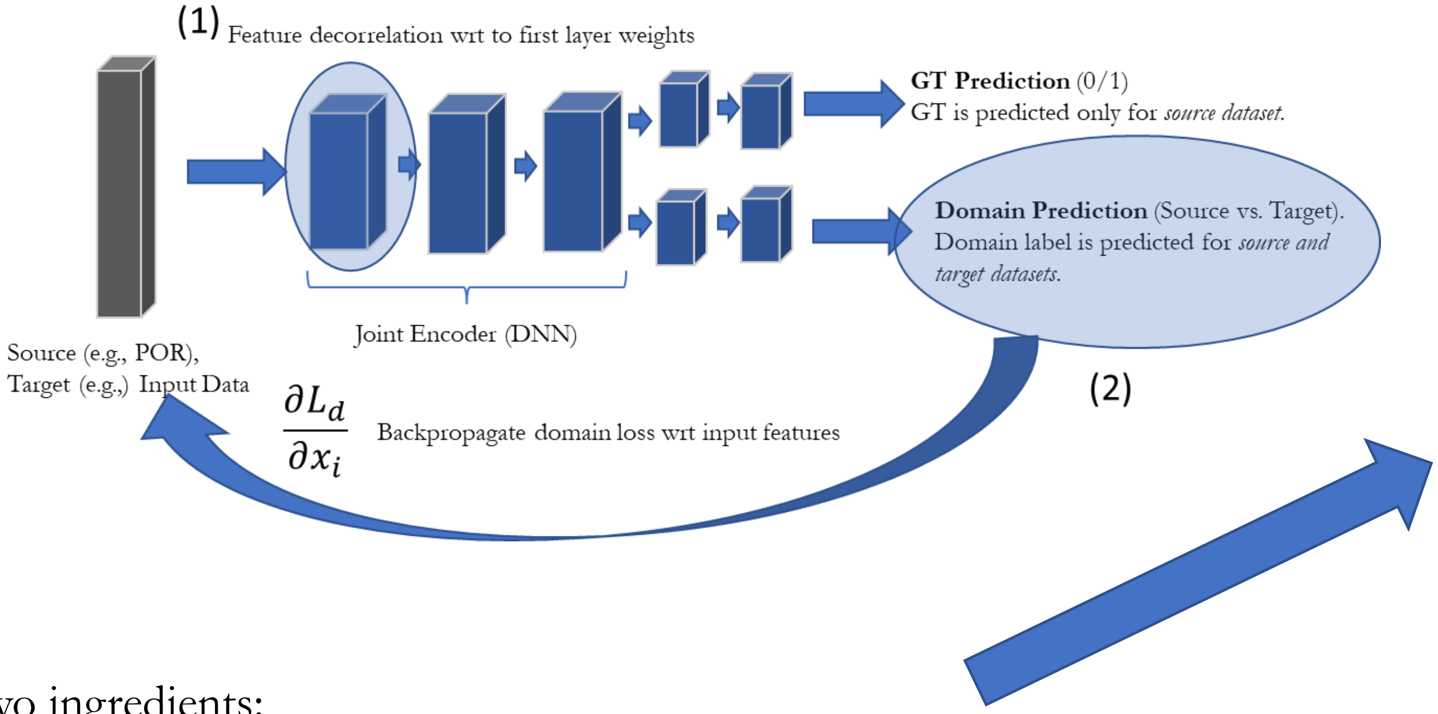


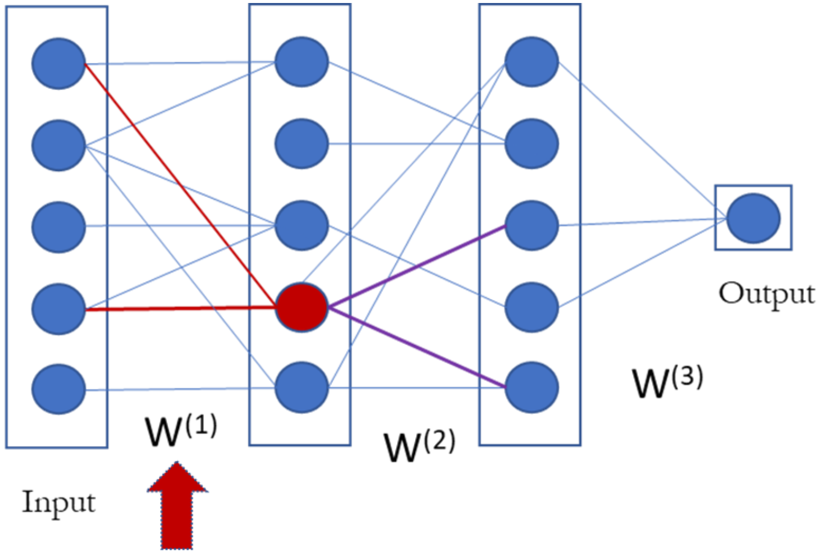
Core idea: We aim to identify the *top-k* most important features for a source ⟶ target domain shift setting; we assume that we have the GT values for the source dataset, but no GT values are available for the target dataset. This way the model learns to extrapolate GT predictions for the target, shifted data, in addition to predicting the data domain.

We construct a joint encoder model to simultaneously predict the domain (source vs. target) **and** GT values (only for the source dataset).

Intel Labs: Anthony Rhodes

<u>Decorrelated Distribution Shift Feature Ranking (DDSFR)</u>





$$W^{(1)} \in \mathbb{R}^{|I|\times|H|} \rightarrow C_{i,j} = \frac{1}{|H|}\sum_H \left(W_i^{(1)} - \mu_i\right)\left(W_j^{(1)} - \mu_j\right)$$

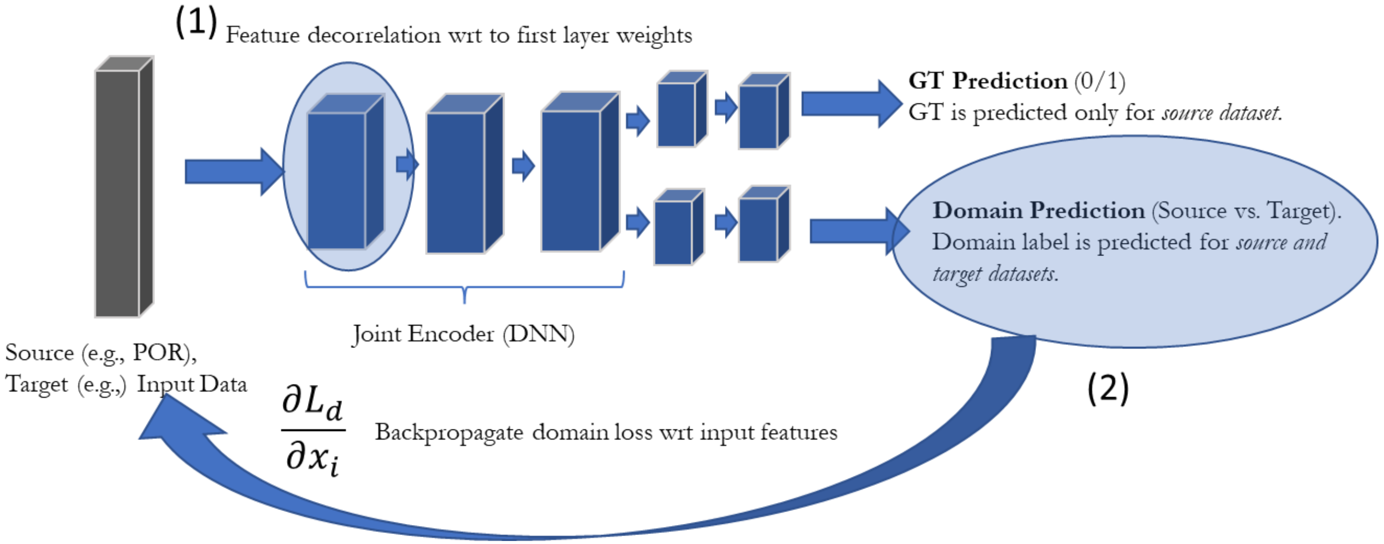
$$L = L(y, f(x,\theta)) + \lambda\left(\|C\|_F^2 - \|diag(C)\|_2^2\right)$$

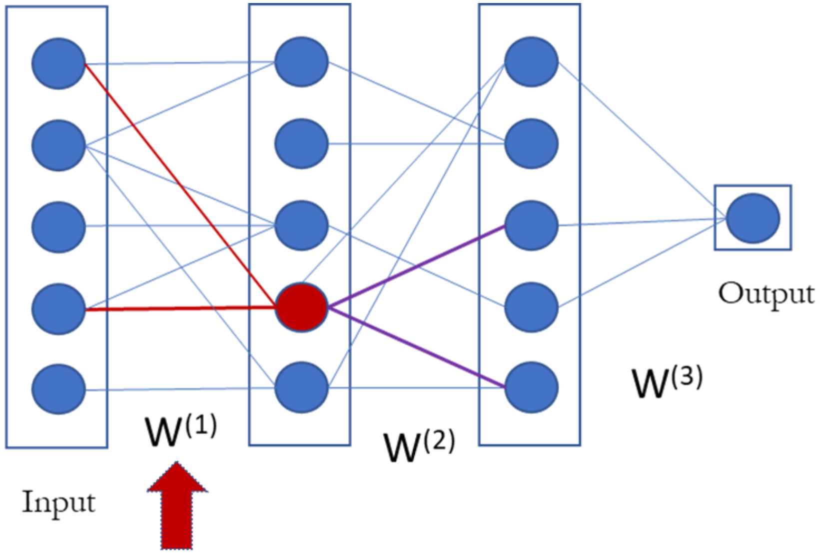
Two ingredients:

(1) Neural Feature Decorrelation: we enforce seamless feature decorrelation via an auxiliary function that minimizes the off-diagonal feature covariances of the first layer weights of the model.

Intel Labs: Anthony Rhodes

Decorrelated Distribution Shift Feature Ranking (DDSFR)





$$W^{(1)} \in \mathbb{R}^{|I| \times |H|} \rightarrow C_{i,j} = \frac{1}{|H|} \sum_H \left(W_i^{(1)} - \mu_i\right)\left(W_j^{(1)} - \mu_j\right)$$

$$L = L(y, f(x, \theta)) + \lambda\left(\|C\|_F^2 - \|diag(C)\|_2^2\right)$$

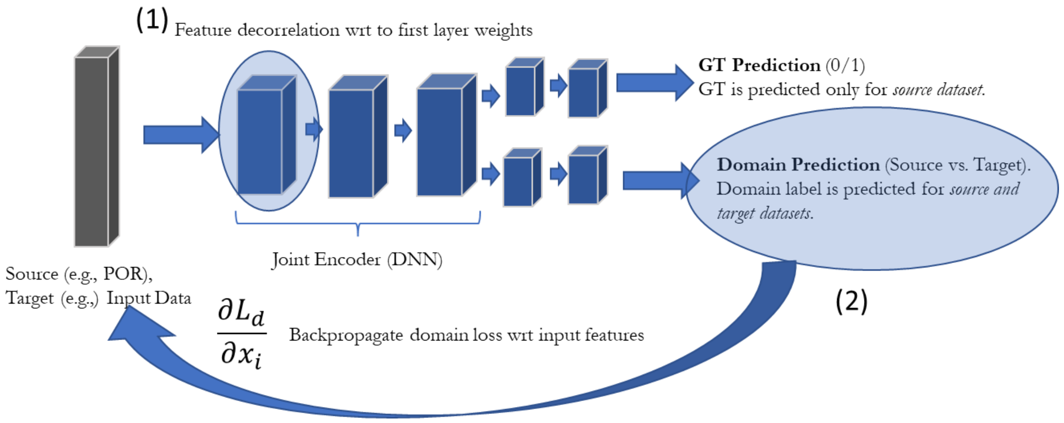
Two ingredients:

(1) Neural Feature Decorrelation: we enforce seamless feature decorrelation via an auxiliary function that minimizes the off-diagonal feature covariances of the first layer weights of the model.

(2) Backpropagation of the domain loss wrt to input features; gradients are averaged over the entire test dataset to calculate DDSFR scores.

Intel Labs: Anthony Rhodes

Decorrelated Distribution Shift Feature Ranking (DDSFR)



Data: 80% training / 20% test split; Data-Preprocessing: Cols removed as identified by Mark; NaN GT data pts removed; input to model is full ~3k data features; missing data features imputed with feature mean; GT='GT_SDT'; note that the model is not explicitly trained on GT annotations for the target dataset.

Results: **POR (source) vs. HDR fan swap (target)**

Test Prediction Task	AUC
GT prediction for *source* (POR)	99.09
GT prediction for *target*	96.92
Domain prediction (source vs. target)	97.89

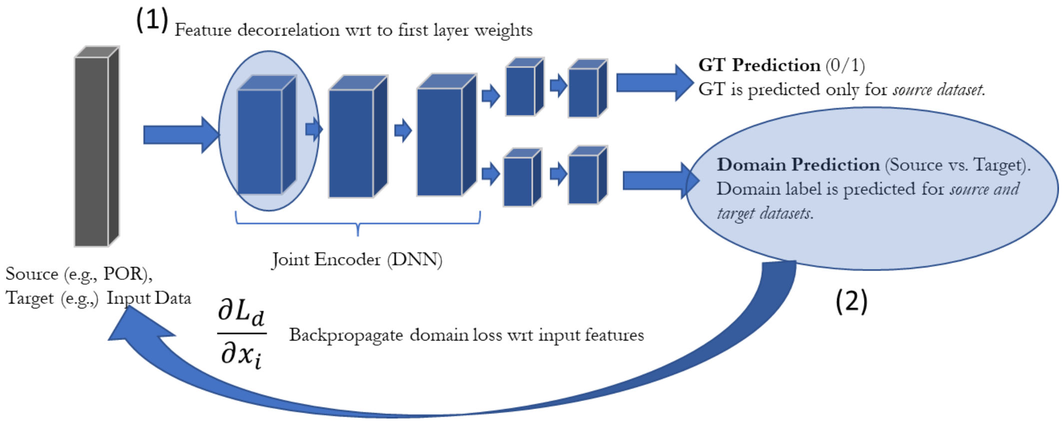
```
1. TPI_VCC::CONT_VCCIA_HC_K_FINAL_X_X_X_X_HC01_POSTSURGE_VCCIA_HC_119325     *****    39051.0703125
2. THERMAL_MAX_TDAU_CH_SA_0_119325     *****    28640.71484375
3. TPI_VCC::CONT_X_X_E_FINAL_X_X_X_X_VCCSHIFT_VCCIA_HC_SHIFT_119325     *****    27750.65625
4. IDV_2119_NOMPLK12_PARPHYTLPLX4CHAIN00_0650_TALL_MED_119325     *****    26021.349609375
5. PCS_TJSTDDEV_TDAU_CH_SA_119325     *****    22579.623046875
6. IDV_2220_XNOMPLK12_CCFCBOPAIR2WRAPPERCBOPAIR2CHAIN60_0650_TALL_MED_119325     *****    21758.869140625
7. IDV_2220_XNOMPLK12_LGCIOPCHCHAIN00_0950_TALL_MED_119325     *****    21743.548828125
8. IDV_2119_NOMPLK12_PARDMIDLPLIOCHAIN00_0950_TALL_MED_119325     *****    21211.73828125
9. TPI_VCC::CONT_X_VLC_E_START_X_X_X_X_POSTSURGE_PARALLEL_VLCDPS_PARALLEL_ALL_VCCATOM1G0_VLC_119325     *****    20802.013671875
10. PCS_TJSTDDEV_TDAU_CH_CCF_119325     *****    20040.873046875
11. IDV_2220_XNOMPLK12_CCFCBOPAIR5WRAPPERCBOPAIR5CHAIN40_0650_MED_119325     *****    19196.41015625
12. IDV_2220_XNOMPLK12_CORE3CORECHAIN0_0650_MED_119325     *****    18668.27734375
13. TPI_SIU_STATIC::PGT_X_DC_K_STRESS_X_X_X_X_STRESS_FC_1600MV_TPI_SIU_STATIC_VCCR_HC_FC_STRESS_SDS_1600MV_119325     *****    17977.65625
14. IDV_2220_XNOMPLK12_CCFCBOPAIR2WRAPPERCBOPAIR2CHAIN40_0950_TALL_MED_119325     *****    17040.01953125
15. IDV_2220_XNOMPLK12_CCFCBOPAIR3WRAPPERCBOPAIR3CHAIN40_0950_TALL_MED_119325     *****    15543.31640625
16. TPI_SIU_STATIC::PGT_X_DC_K_END_X_X_X_X_END_FC_1400MV_TPI_SIU_STATIC_VCCIAGLC_HC_FC_END_SDS_1400MV_119325     *****    13826.1904296875
17. IDV_2220_XNOMPLK12_PARTLTXX16CHAIN30_0950_MED_119325     *****    13069.1474609375
18. HVQK_MBIT_SD_NSEARCHES_SKIPPED_119325     *****    11441.7001953125
19. TPI_SIU_STATIC::PGT_X_DC_K_START_X_X_X_X_NOMMV_FC_TPI_SIU_STATIC_VCCATOM3L2_LC_FC_START_SDS_950MV_119325     *****    10427.3466796875
20. TPI_SIU_STATIC::PGT_X_DC_K_STRESS_X_X_X_X_STRESS_FC_1200MV_TPI_SIU_STATIC_VCCIAGLC_HC_FC_STRESS_SDS_1200MV_119325     *****    10414.6513671875
21. IDV_2207_XSVTPLK12_LGCIOPCHCHAIN00_0950_TALL_MED_119325     *****    9925.5283203125
22. IDV_2120_SVTPLK12_PARPHYFIAX16CHAIN20_0950_TALL_MED_119325     *****    9363.4443359375
23. IDV_3020_XNOMPLK12_CORE6PMACHAIN0_0950_MED_119325     *****    8670.4619140625
24. TPI_SIU_STATIC::PGT_X_DC_K_SDTSTART_X_X_X_X_NOMMV_PGONLY_SDT_TPI_SIU_STATIC_VCCDIG_HV_PGONLY_SDTSTART_SDT_950MV_119325     *****    8531.71875
25. IDV_2220_XNOMPLK12_CCFCBOPAIR5WRAPPERCBOPAIR5CHAIN40_0950_MED_119325     *****    7989.3115234375
26. IDV_2207_XSVTPLK12_MCMISCCHAIN10_0950_TALL_MED_119325     *****    7522.529296875
27. TPI_VCC::CONT_X_X_E_FINAL_X_X_X_X_VCCSHIFT_VCCDDQ_HV_SHIFT_119325     *****    7510.728515625
28. TPI_SIU_STATIC::PGT_X_DC_K_START_X_X_X_X_NOMMV_PH1A_TPI_SIU_STATIC_VCCIAGLC_HC_PH1A_START_SDS_950MV_119325     *****    7012.30517578125
29. TPI_SIU_STATIC::PGT_X_DC_K_START_X_X_X_X_NOMMV_PGONLY_TPI_SIU_STATIC_VCCIAGLC_HC_PGONLY_START_SDS_950MV_119325     *****    6610.626953125
30. IDV_2220_XNOMPLK12_CCFCBOPAIR2WRAPPERCBOPAIR2CHAIN00_0950_MED_119325     *****    6478.7373046875
31. TPI_SIU_STATIC::PGT_X_DC_K_SDTSTRESS_X_X_X_X_SDTSTRESS_FC_1500MV_TPI_SIU_STATIC_VCCR_HC_FC_SDTSTRESS_SDT_1500MV_119325     *****    6019.947265625
32. IDV_2207_XSVTPLK12_CCFCBOPAIR2WRAPPERCBOPAIR2CHAIN20_0950_TALL_MED_119325     *****    5595.8291015625
33. TPI_SIU_STATIC::PGT_X_DC_K_SDTSTART_X_X_X_X_NOMMV_PH1A_SDT_TPI_SIU_STATIC_VCCIAGLC_HC_PH1A_SDTSTART_SDT_950MV_119325     *****    5487.8779296875
34. PCS_VMU_PB_119325     *****    5467.88232421875
35. IDV_2207_XSVTPLK12_MCMISCCHAIN10_0950_MED_119325     *****    5464.02294921875
36. MEM0_BEGIN_VMU_PB_TPI_BASE::CTRL_X_X_E_START_X_X_X_X_MEMUSE_119325     *****    5462.86669921875
37. TH_TD_TDAU_CH_CCF_TPI_ICY_HOT::DIODE_X_TDAU_E_FINAL_X_X_X_X_TJRISE_119325     *****    5257.3271484375
38. IDV_2207_XSVTPLK12_CCFCBOPAIR0WRAPPERCBOPAIR0CHAIN00_0950_TALL_MED_119325     *****    5227.66796875
39. IDV_2207_XSVTPLK12_NPKCHAIN00_0950_MED_119325     *****    5222.3916015625
40. TPI_SIU_STATIC::PGT_X_DC_K_SDTSTART_X_X_X_X_NOMMV_PH1A_SDT_TPI_SIU_STATIC_VCCGT_HC_PH1A_SDTSTART_SDT_950MV_119325     *****    5170.2373046875
41. IDV_2207_XSVTPLK12_MCMISCCHAIN00_0950_TALL_MED_119325     *****    5080.00439453125
42. TPI_VCC::CONT_VCCANA_HV_K_FINAL_X_X_X_X_HV01_POSTSURGE_VCCANA_HV_119325     *****    4997.99853515625
```

Top-500 ranked features for DDSFR (see txt file)

intel

Intel Labs: Anthony Rhodes

Decorrelated Distribution Shift Feature Ranking(DDSFR)



Data: 80% training / 20% test split; Data-Preprocessing: Cols removed as identified by Mark; NaN GT data pts removed; input to model is full ~3k data features; missing data features imputed with feature mean; GT='GT_SDT'; note that the model is not explicitly trained on GT annotations for the target dataset.

Results: **POR (source) vs. HDR fan no anneal (target)**

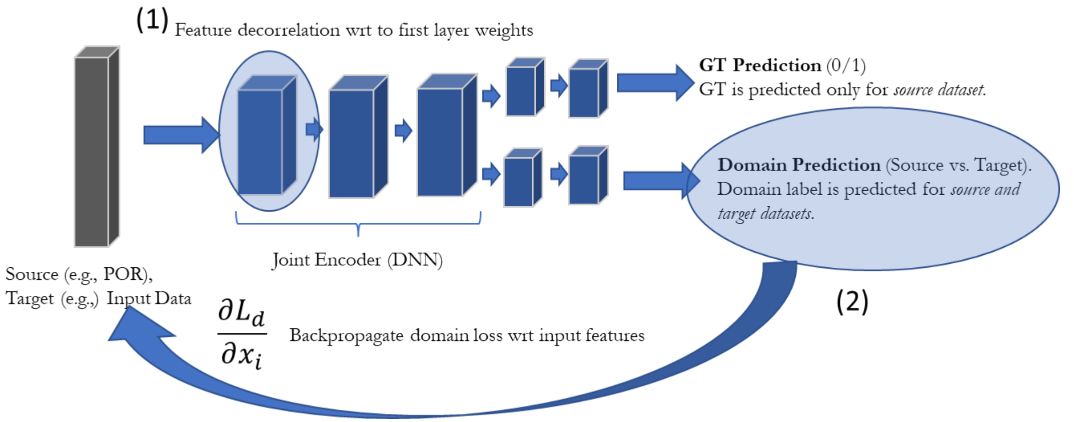
Test Prediction Task	AUC
GT prediction for *source* (POR)	99.04
GT prediction for *target*	97.13
Domain prediction (source vs. target)	96.98

```
0. IDV_2118_SVTNLK12_PARDISPCHAIN10_0950_MED_119325     *****    2981.6337890625
1. TPI_VCC::CONT_X_VLC_E_START_X_X_X_X_POSTSURGE_PARALLEL_VLCDPS_PARALLEL_ALL_VCC1_VLC_119325     *****    2441.200439453125
2. IDV_2208_XSVTNLK12_MCMISCSDDR00_0950_MED_119325     *****    2023.7327880859375
3. TPI_VCC::CONT_X_HV_E_SDTFINAL_X_X_X_X_POSTSURGE_PARALLEL_HVDPS_ALL_VCCANA_HV_119325     *****    1982.122314453125
4. IDV_2223_XNOMNLK12_NPKCHAIN00_0650_MED_119325     *****    1912.1129150390625
5. IDV_OSC_2223_FUBLET_2702_950_MV_119325     *****    1624.103515625
6. IDV_2208_XSVTNLK12_CORE6CORECHAIN0_0650_MED_119325     *****    1587.4534912109375
7. IDV_2223_XNOMNLK12_CORE1CORECHAIN0_0650_MED_119325     *****    1479.1622314453125
8. IDV_2118_SVTNLK12_PARDISPCHAIN20_0650_MED_119325     *****    1365.6318359375
9. TPI_SIU_STATIC::PGT_X_DC_K_SDTFINAL_X_X_X_X_NOMMV_FC_SDT_TPI_SIU_STATIC_VCCATOM0L2_LC_FC_SDTFINAL_SDT_950MV_119325     *****    1349.1440429687 5
10. IDV_2208_XSVTNLK12_IOPCHAIN00_0950_MED_119325     *****    1342.7158203125
11. TPI_VCC::CONT_X_VLC_E_FINAL_X_X_X_X_POSTSURGE_PARALLEL_VLCDPS_PARALLEL_ALL_VCCATOM1GBIU_VLC_119325     *****    1255.0936279296875
12. TPI_VCC::CONT_X_LC_E_SDTSTART_X_X_X_X_POSTSURGE_PARALLEL_LCDPS_ALL_VCCATOM0L2_LC_119325     *****    1220.494384765625
13. IDV_2120_SVTPLK12_GRT3IDVCHAIN0_0950_MED_119325     *****    1170.3199462890625
14. TPI_VCC::CONT_X_VLC_E_FINAL_X_X_X_X_POSTSURGE_PARALLEL_VLCDPS_PARALLEL_ALL_VCCATOM3GBIU_VLC_119325     *****    1144.4779052734375
15. PP_PWR_DICC_GT_F2_V1_119325     *****    1136.9918212890625
16. IDV_2223_XNOMNLK12_IOPCHAIN00_0950_MED_119325     *****    1086.7554931640625
17. TPI_SIU_STATIC::PGT_X_DC_K_SDTSTART_X_X_X_X_NOMMV_PGONLY_SDT_TPI_SIU_STATIC_VCC1P8_LC_PGONLY_SDTSTART_SDT_1800MV_119325     *****    1042.748291015625
18. IDV_2207_XSVTPLK12_CMIFASTCHAIN00_0650_MED_119325     *****    1000.0439453125
19. PP_PWR_SICC_VCCIA_GLC_TOTAL_V1_119325     *****    992.2748413085938
20. TPI_VCC::CONT_X_LC_E_SDTFINAL_X_X_X_X_POSTSURGE_PARALLEL_LCDPS_ALL_VCC1P8_LC_119325     *****    980.4771728515625
21. IDV_2120_SVTPLK12_PARPHYFIAX16CHAIN20_0950_TALL_MED_119325     *****    924.756591796875
22. TPI_SIU_STATIC::PGT_X_DC_K_SDTSTART_X_X_X_X_700MV_FC_SDT_TPI_SIU_STATIC_VCCR_HC_FC_SDTSTART_SDT_700MV_119325     *****    906.603759765625
23. IDV_2207_XSVTPLK12_CORE2PMACHAIN0_0950_MED_119325     *****    899.5375366210938
24. IDV_2208_XSVTNLK12_GDTIDVSL0CH10_0950_TALL_MED_119325     *****    859.899658203125
25. IDV_2208_XSVTNLK12_PARFMHCCHAIN00_0950_TALL_MED_119325     *****    859.12451171875
26. TPI_VCC::CONT_X_LC_E_SDTFINAL_X_X_X_X_POSTSURGE_PARALLEL_LCDPS_ALL_VCCATOM2L2_LC_119325     *****    852.4160766601562
27. SDTSTRESS_SDTIO_SDTSIO_HSPHY_VOLTAGE_119325     *****    810.2962646484375
28. IDV_2223_XNOMNLK12_CORE2PMACHAIN0_0650_MED_119325     *****    802.9468383789062
29. IDV_OSC_2223_FUBLET_2701_950_MV_119325     *****    748.2399291992188
30. HVQK_MBIT_SD_NSEARCHES_SKIPPED_119325     *****    742.1572875976562
31. TPI_VCC::CONT_X_HV_E_SDTSTART_X_X_X_X_POSTSURGE_PARALLEL_HVDPS_ALL_VCCANA_HV_119325     *****    739.0238037109375
32. TPI_VCC::CONT_X_VLC_E_START_X_X_X_X_POSTSURGE_PARALLEL_VLCDPS_PARALLEL_ALL_VCCATOM2GBIU_VLC_119325     *****    687.4210815429688
33. TPI_SIU_STATIC::PGT_X_DC_K_FINAL_X_X_X_X_FINAL_NOMMV_FC_TPI_SIU_STATIC_VCCD2_HV_FC_FINAL_SDS_1200MV_119325     *****    684.7353515625
34. TPI_VCC::CONT_X_VLC_E_SDTSTART_X_X_X_X_POSTSURGE_PARALLEL_VLCDPS_PARALLEL_ALL_VCC1_VLC_119325     *****    681.8947143554688
35. IDV_3007_XSVTPLK12_CORE7PMACHAIN0_0950_MED_119325     *****    681.589111328125
36. IDV_2220_XNOMPLK12_PARPSF0CHAIN00_0950_TALL_MED_119325     *****    678.6005249023438
37. IDV_2208_XSVTNLK12_CCFCBOPAIR0WRAPPERCBOPAIR0CHAIN40_0950_MED_119325     *****    642.044921875
38. TPI_VCC::CONT_X_LC_E_START_X_X_X_X_POSTSURGE_VCCATOM3L2_LC_119325     *****    634.1873168945312
39. IDV_2117_NOMNLK12_GRT3IDVCHAIN0_0650_MED_119325     *****    625.0731201171875
40. SDTSTRESS_SDTSOC_VOLTAGE_119325     *****    619.76220703125
41. IDV_2208_XSVTNLK12_CORE6PMACHAIN0_0950_MED_119325     *****    619.2006225585938
```

Top-500 ranked features for DDSFR (see txt file)

Intel Labs: Anthony Rhodes

Decorrelated Distribution Shift Feature Ranking(DDSFR)



Data: 80% training / 20% test split; Data-Preprocessing: NaN, GT data pts removed; input to model top 100 common data features – as ranked by LightGBM (~300k+ data pts); missing data features imputed with feature mean; GT='GT_Hot'; note that the model is not explicitly trained on GT annotations for the target dataset.

Results: **new_report (source) vs. RPL81(target)**

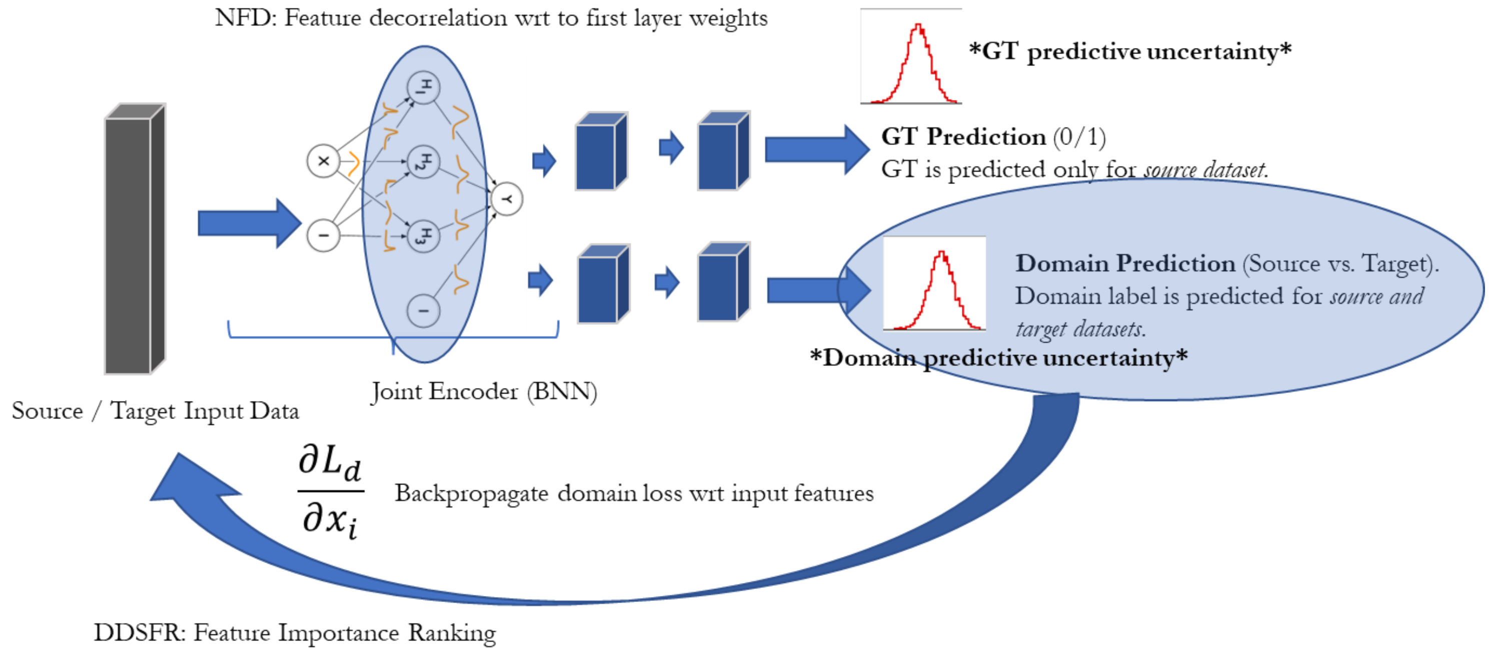
Test Prediction Task	AUC
GT prediction for source	71.03
GT prediction for target	80.57
Domain prediction (source vs. target)	1.0

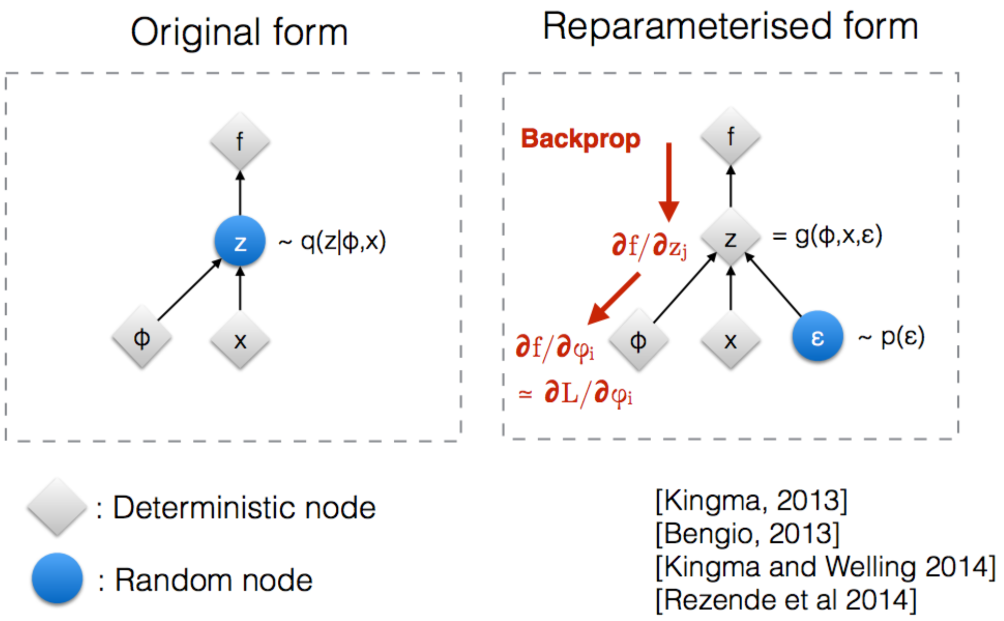
```
ARR_CORE_SSA_X_USERFUNC_K_BEGIN_X_VCCIA_X_X_MLCDATC_600MV_FDS_119325_U1     *****    2.8361337184906006
ARR_DE_RAM_DE_REPAIR_K_BEGIN_X_X_X_X_VMIN_VOLTAGESTEPS_119325_U1     *****    2.6738719940185547
ARR_CCF_SSA_CCF_REPAIR_E_BEGIN_X_VCCR_X_LFM_VFDMPY_HCS_119325_U1     *****    1.408721685409546
ARR_GRT_SSA_ATOM_SCREEN_K_POSTHVQK_X_X_X_X_ATOM_ATOM0_L2TSP_PST_119325_U1     *****    1.2688676118850708
DELAY_INDEX_TIME_119325_U1     *****    1.2298927307128906
HVQK_VMIN_POST_SCN_GRT2_119325_U1     *****    1.0215535163879395
HVQK_VMIN_POST_CACHE_CCF_GBO_LSA_119325_U1     *****    1.0152312517166138
HVQK_IO_VOLTAGE_119325_U1     *****    0.982284665107727
BIN_SDT_G_U_I_MERGED_SDT_IB_119325_U1     *****    0.9624685049057007
ARR_GRT_SSA_ATOM_SCREEN_K_POSTHVQK_X_X_X_X_ATOM_ATOM3_L2TSP_PST_119325_U1     *****    0.8906852006912231
ARR_CORE_ALL_X_USERFUNC_K_BEGIN_X_VCCIA_X_X_MLCC6S_FDS_119325_U1     *****    0.8563929796218872
HVQK_GT_SCAN_MEDIA_VOLTAGE_119325_U1     *****    0.8330227732658386
HVQK_SOC_SCAN_CMIMISC_VOLTAGE_119325_U1     *****    0.8131815791130066
HVQK_CORE_SCAN_CORE01234567_MLPUTC_VOLTAGE_119325_U1     *****    0.7825002074241638
ARR_GRT_SSA_ATOM_SCREEN_K_POSTHVQK_X_X_X_X_ATOM_ATOM1_L2TSP_PST_119325_U1     *****    0.6617875099182129
ARR_GRT_SSA_ATOM_SCREEN_K_PREHVQK_X_X_X_X_ATOM_ATOM2_L2C6S_PRE_119325_U1     *****    0.6423903703689575
ARR_GRT_SSA_ATOM_SCREEN_K_PREHVQK_X_X_X_X_ATOM_ATOM1_L2C6S_PRE_119325_U1     *****    0.6326137781143188
ARR_GRT_SSA_ATOM_SCREEN_K_POSTHVQK_X_X_X_X_ATOM_ATOM2_L2TSP_PST_119325_U1     *****    0.6287679672241211
HVQK_VMIN_PRE_SCAN_SOC_PCIESSTLPLX4HUB_119325_U1     *****    0.6111424565315247
HVQK_GT_VOLTAGE_119325_U1     *****    0.6008433103561401
HVQK_VMIN_POST_CACHE_ATOM_RF_GALCOL_LSA_119325_U1     *****    0.5884475708007812
HVQK_VMIN_POST_CACHE_SOC_LSA_SA_119325_U1     *****    0.5832353830337524
ARR_GRT_SSA_ATOM0_REPAIR_E_BEGIN_X_VCCC_X_LFM_L2DATA_UF_HCS_119325_U1     *****    0.579160928726963
ARR_GRT_SSA_ATOM_SCREEN_K_POSTHVQK_X_X_X_X_ATOM_ATOM1_L2DATA_PST_119325_U1     *****    0.5731686353683472
HVQK_VMIN_POST_CACHE_CCF_LLCTAG_SSA_119325_U1     *****    0.5584021210670471
HVQK_VMIN_PRE_CACHE_ATOM_RF_GALCOL_LSA_119325_U1     *****    0.5431519150733948
ARR_GRT_SSA_ATOM_SCREEN_K_PREHVQK_X_X_X_X_ATOM_ATOM2_L2TSP_PRE_119325_U1     *****    0.5430955290794373
ARR_DE_RAM_DE_REPAIR_K_BEGIN_X_X_X_X_VMIN_VOLTAGE_119325_U1     *****    0.537715494632721
HVQK_VMIN_PRE_CACHE_CCF_LLCTAG_SSA_119325_U1     *****    0.5336730480194092
ARR_GRT_SSA_ATOM0_REPAIR_E_BEGIN_X_VCCC_X_LFM_L2DATA_UF_FDS_119325_U1     *****    0.512181580066809
ARR_CCF_LSA_CCF_VMIN_K_POSTHVQK_NOM_VCCR_LFM_0800_CLR_WRC_VMIN_119325_U1     *****    0.507278561592102
HVQK_VMIN_POST_SCAN_SOC_PMIPHUB_119325_U1     *****    0.49025410413742065
HVQK_VMIN_POST_SCAN_SOC_CMIMISCHUB_119325_U1     *****    0.4766714572906494
HVQK_VMIN_PRE_CACHE_SOC_LSA_SA_119325_U1     *****    0.4752899706363678
ARR_CORE_LSA_X_USERFUNC_K_BEGIN_X_VCCIA_X_X_MLCTAG_575MV_FDS_119325_U1     *****    0.464047402143478
ARR_GRT_SSA_ATOM_SCREEN_K_PREHVQK_X_X_X_X_ATOM_ATOM0_L2C6S_PRE_119325_U1     *****    0.4525783360004425
HVQK_VMIN_POST_SCN_DE_119325_U1     *****    0.4447949528694153
HVQK_VMIN_PRE_CACHE_CORE_PMUCS_SSA_119325_U1     *****    0.44414594769477844
HVQK_VMIN_PRE_SCAN_SOC_DMIDLPLIOHUB_119325_U1     *****    0.43939295411109924
HVQK_MBIT_SD_POSTRECOVERY_HVQK_MBIT_119325_U1     *****    0.42682209610939026
```

Top-100 ranked features for DDSFR (see txt file)

Intel Labs: Anthony Rhodes

Decorrelated Distribution Shift Feature Ranking(DDSFR)





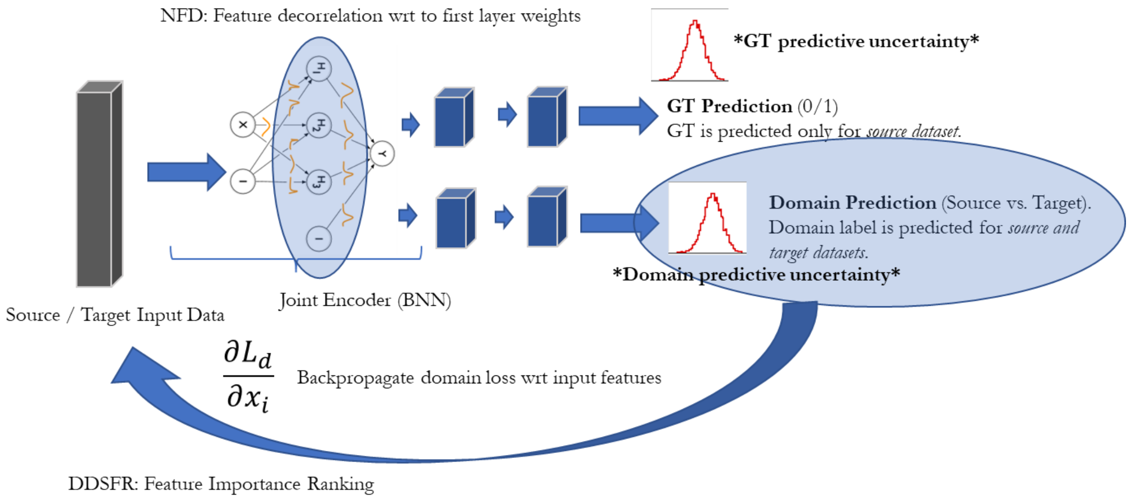
Predictive uncertainty estimation: We can easily adapt our NN-based solution for feature ranking to elicit predictive uncertainty estimates, e.g., using **BNN**s (code already implemented) or **MC Dropout** for predictive uncertainty estimation for GT and domain prediction.

*Such uncertainty estimates can be used to further enhance DDSFR explainability, amplify human-in-the-loop functionality, help with OOD/outlier detection.

Q: For the yield use case, which settings are most useful: uncertainty estimate for domain/GT, per-datum, feature ranking over entire dataset or per-datum, others?

Intel Labs: Anthony Rhodes

Decorrelated Distribution Shift Feature Ranking(DDSFR)



Overview of pros/cons of this method:

(+) Single, end-to-end model for multi-task prediction (GT/domain prediction) and feature ranking
(+) Model learns to reliably extrapolate unsupervised GT prediction for target domain
(+) Embedded feature decorrelation to reduce redundancy
(+) Easy to adapt predictive uncertainty estimates

(-) Requires a bit more compute/train time than some classical models (lightGBM)