**Curs opțional Modele de inteligență artificială în schimbarea climatică**

**Teme de proiect disponibile**

| **Nr. Crt.** | **Tema** | **Domeniu** | **Set de date disponibil (daca exista)** | **Articol similar** |
| --- | --- | --- | --- | --- |
| P01 | Detecția corpurilor de iluminat dintr-o imagine | AI for Earth/Society | Se recomanda colectarea manuala/automata a imaginilorcare contin corpuri de iluminat de pe net. | cea mai apropiata abordare ar fi aceasta: <https://ieeexplore.ieee.org/abstract/document/8906486> |
| P02 | Analiză spectrală pe imagini (detecția temperaturii de culoare) | AI for Earth/Society | Imagini satelitare pot fi descarcate de aici: <https://scihub.copernicus.eu/> sau de aici: <https://collections.sentinel-hub.com/> | <https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11155/111551O/Land-cover-classification-and-change-detection-analysis-of-multispectral-satellite/10.1117/12.2532988.short?SSO=1> |
| P03 | Predicția evoluției poluării luminoase pe baza imaginilor satelitare | AI for Earth/Society | <https://datasetsearch.research.google.com/search?src=0&query=light%20polution&docid=L2cvMTFrZHAza3Q3dg%3D%3D>  sau  <https://zenodo.org/record/4962533#.YhVf-pb8s2w>  Imagini satelitare pot fi descarcate de aici: <https://scihub.copernicus.eu/> sau de aici: <https://collections.sentinel-hub.com/> | <https://royalsocietypublishing.org/doi/full/10.1098/rspb.2017.2751> |
|  |  |  |  |  |
| P04 | Predictie evolutie nivel radon pe serii de timp disponibile | AI for Environment | <https://ubbcluj-my.sharepoint.com/:f:/g/personal/adriana_coroiu_ubbcluj_ro/EtTSBIf_IJZKvL9udTAbRlkBr7tkdcKTkmy4xpT0VyST5Q?e=DAi6hA> | <https://www.sciencedirect.com/science/article/pii/S0048969718306314?casa_token=cwOgEKrVhRIAAAAA:IsFBm1TO7jF8ukwNgS8F0VLpRwiMXQn-qOD277n5IgzXFa6Myn_1kgtJF_r0JbqrdUI0U6ks5Q> |
| P05 | Identificare corelatii intre radon si CO2 | AI for Environment | <https://ubbcluj-my.sharepoint.com/:f:/g/personal/adriana_coroiu_ubbcluj_ro/EtTSBIf_IJZKvL9udTAbRlkBr7tkdcKTkmy4xpT0VyST5Q?e=DAi6hA> | <https://www.sciencedirect.com/science/article/pii/S1350448720301815?casa_token=u6XITKQFVhoAAAAA:WEOSk9iUItDMGylEi5KrzFqR8l9eFpL66CNlYMrjK1pQouvub0RwhrwlTI5ADMqmfRYk494QVA> |
| P06 | Identificare corelatii intre radon, CO2 si cutremure | AI for Environment | <https://ubbcluj-my.sharepoint.com/:f:/g/personal/adriana_coroiu_ubbcluj_ro/EtTSBIf_IJZKvL9udTAbRlkBr7tkdcKTkmy4xpT0VyST5Q?e=DAi6hA> | <https://link.springer.com/article/10.1007/s00024-021-02736-9>  si  <https://www.sciencedirect.com/science/article/pii/S0969804319307353?casa_token=_98zMo-EZx4AAAAA:VDg1eP1D8G2hOLGlV7QL99OQoxG90xgLOedQvDTlqc9waAV7looG0sye9Cnv3CQHK0AJZVdNPg> |
| P07 | Aplicare regresie quantila asupra seturile de date de la mediu | AI for Environment | <https://ubbcluj-my.sharepoint.com/:f:/g/personal/adriana_coroiu_ubbcluj_ro/EtTSBIf_IJZKvL9udTAbRlkBr7tkdcKTkmy4xpT0VyST5Q?e=DAi6hA> | <https://link.springer.com/article/10.1007/s10666-011-9249-3> |
| P08 | Detectie frunze bolnave pentru aplicarea unui tratament rapid | AI for Agriculture | Set de date disponibil aici: <https://www.kaggle.com/c/leaf-classification/data>  Sau  Se pot colecta manual/automat a imaginilor care contin frunze sanatoase/bolnave | <https://ieeexplore.ieee.org/abstract/document/7416356> |
| P09 | Detectie fructe bolnave cu scopul de a fi culese mai repede sau pentru a fi aplicat un tratament optim | AI for Agriculture | <https://datasetsearch.research.google.com/search?src=0&query=fruits%20pathology&docid=L2cvMTFtcXdkbTRneQ%3D%3D>  sau  <https://www.kaggle.com/tobiek/green-finder> | <https://ieeexplore.ieee.org/abstract/document/9358541> |
| P10 | Detectie legume bolnave | AI for Agriculture | Set de date disponibil aici: <https://data.world/sharon/vegetables-herbs-and-edible-flowers>  sau <https://www.kaggle.com/kritikseth/fruit-and-vegetable-image-recognition>  sau  Se pot colecta manual/automat a imaginilor care contin legume sanatoase/bolnave | <https://www.ijetcse.com/admin/uploads/Disease%20Detection%20in%20Vegetables%20Using%20Image%20Processing%20Techniques:%20A%20Review_1605597006.pdf> |
|  |  |  |  |  |
| P11 | Monitorizarea si predictia in schimbarile de temperatura cu efect in topirea ghetarilor | AI for Earth | <https://www.kaggle.com/sevgisarac/temperature-change>  sau  customizare si download de aici: <https://climateknowledgeportal.worldbank.org/download-data> | <https://arxiv.org/abs/1910.08922> |
| P12 | Deforestation prediction/detection | AI for Earth | <https://datasets.wri.org/dataset/079feba589a34c5caed11dc4a5c03a47> | <https://www.researchgate.net/profile/Muhammad-Arif-75/publication/350195413_Role_of_Machine_Learning_Algorithms_in_Forest_Fire_Management_A_Literature_Review/links/605735dc92851cd8ce57bbbe/Role-of-Machine-Learning-Algorithms-in-Forest-Fire-Management-A-Literature-Review.pdf> |
| P13 | Forest Fires prediction | AI for Earth | <https://archive.ics.uci.edu/ml/datasets/forest+fires>  sau  <https://www.kaggle.com/phylake1337/fire-dataset> | <https://www.sciencedirect.com/science/article/pii/S2589721721000118> |
| P14 | Sky Brightness Classification | AI for Earth | <https://cires.colorado.edu/Artificial-light>  sau  <https://sos.noaa.gov/catalog/datasets/light-pollution-artificial-sky-brightness/> | <https://www.hindawi.com/journals/aa/2020/5102065/> |
| P15 | Identificare rezistenta embrioni la inundatii | AI for Society | Setul de date: <https://ubbcluj-my.sharepoint.com/:x:/g/personal/adriana_coroiu_ubbcluj_ro/EVbh3o6SNzNMsyi10vqUZ1MBz6o-du3K_fAusJv4SXeIIg?e=u5kbo5>  Descriere: <https://ubbcluj-my.sharepoint.com/:t:/g/personal/adriana_coroiu_ubbcluj_ro/EV0yB4qn0xZIvLN05lJbHtwBy71iHUuLZ0oRQhyNz0jClA?e=l7KvOa> | <https://www.sciencedirect.com/science/article/abs/pii/S0168169918316831> |
| P16 | Identificare corelatii intre nivelul de lumina care poate trece prin coaja unui ou si diferite caracteristici ale diferitelor specii care le produc | AI for Society | Setul de date: <https://ubbcluj-my.sharepoint.com/:x:/g/personal/adriana_coroiu_ubbcluj_ro/EUNzCZWChCBJtZeXYyFB2yABk0lTf2EUQdQocED7TWR8Og?e=NEBynH>  Descriere: <https://ubbcluj-my.sharepoint.com/:t:/g/personal/adriana_coroiu_ubbcluj_ro/EQcmQvmM7ZxPoPfIk5hi6CEBVKedOzjzz3ANZtAbT1-2XQ?e=Sigm71> | <https://www.sciencedirect.com/science/article/pii/S2214317314000213> |
| P17 | Traficul, localizarea si pasarile. Corelatii. | AI for Society | Set de date: <https://ubbcluj-my.sharepoint.com/:x:/g/personal/adriana_coroiu_ubbcluj_ro/ERBvxDqhYPlHvDba9MSH594BqcpLm6qerwylJUmGvw8mkg?e=Yzx4HG>  Descriere: <https://ubbcluj-my.sharepoint.com/:t:/g/personal/adriana_coroiu_ubbcluj_ro/EehGStvgm4dHp-nKYcIBSjEBgxyVptC-Kly0hobGqkmJRg?e=N0BVc3> | <https://www.sciencedirect.com/science/article/abs/pii/S1618866721001138?casa_token=zyXR6q1lqCQAAAAA:DNBY5A5pwkZZHrKko-CBdgbcK_5qqnSvQTJxhVYpY87I7CfybyHRZeEsTGtGPGm8X2UOcWxmyQ> |
| P18 | Synoptic map – smart identification | AI for Earth | Colectare si creare set de date | <https://wcd.copernicus.org/articles/3/113/2022/wcd-3-113-2022.pdf> |
| P19 | Predictie valoare temeperatura medie | AI for Earth | Date de aici: <http://www.meteomanz.com/info?l=1>  Sau de aici:  <https://meteostat.net/en/> | <https://link.springer.com/article/10.1007/s12273-021-0775-x> |

* Pana la finalul saptamanii 2 exista posibilitatea ca lista actuala sa se modifice prin adaugarea altor propuneri de proiecte.
* Echipele care au avut optionale de IA in primul semestru, pot continua sa lucreze pe acele proiecte cu identificarea clara a functionalitatilor/imbunatatirilor care se aduc fata de versiunea anterioara.
* Daca exista studenti care folosesc proiectul de la disciplina noastra, la o alta disciplina (sau invers) in acest semestru, sunt rugati sa identifice care sunt functionalitatile care s-au dezvoltat pentru o disciplina si care sunt functionalitatile care s-au dezvoltat pentru o alta disciplina.
* De asemenea daca exista intre voi cineva pasionat de un anumit topic related to, si vreti sa o transformati in proiect pentru aceasta disciplina, va rog sa imi spuneti, discutam si se poate adauga.