Project Supported Transformations

Scientific

Domain	Tool	Type	Description	Repositories	Contact
Hydrology	**Advection Diffusion**		Solve a general advection-dispersion equation.		Dong Kook Woo Sandeep Puthanveetil Satheesan
	Chemical Mean Age	Extractor	Determine the mean age of chemical constituents with inputs of chemical dynamics.		Dong Kook Woo Sandeep Puthanveetil Satheesan
	Document Tables Extractor (ncsa.nlp.wordtables)	Extractor	Extract tables from documents.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-nlp/browse/WordTablesExtractor	
	GDAL (ncsa.geo.shpExtractor)	Extractor		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-geo/browse	Smruti Padhy Jong Lee
	GDAL (ncsa.geo.tiffExtractor)	Extractor		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-geo/browse	Smruti Padhy Jong Lee
	GDAL (ncsa.image.geotiff)	Extractor		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-geotiff/browse	Mostafa Elag Jong Lee
	Historical River Extractor (ncsa.cv.river)	Extractor	Extract the river networks from the ancient hand-drawing maps and compare them with current river networks	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-cv/browse/river	Qina Yan
	Normalized Difference Vegetation Index (ncsa.arcgis.landsat7mosaic)	Extractor		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-bd-cz/browse/ndviextractor	Smruti Padhy
	River Chi Index	Extractor	Identify the river dynamics in a river basin and evaluate human activities' influences through Chi index in the streams.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-bd-cz/browse/chi-analysis	Qina Yan Sandeep Puthanveetil Satheesan
	River Sinuosity	Extractor	Study the maturity and equilibrium conditions of a stream through the sinuosity index.		Qina Yan Sandeep Puthanveetil Satheesan
	Soil Moisture Change	Extractor	Determine role of hydraulic redistribution in AZ (riparian site / upland site) by studying soil moisture change throughout different seasons.		Esther Lee (estherl2010@gmail.com) Sandeep Puthanveetil Satheesan
	Species Classifier	Extractor	SAM based Species Classification from **Hyperspectral** data, Hyperspectral Indices, NDVI, SAVI, MSAVI, etc.		Debsunder Dutta (debsunderdutta@gmail.com) *leaving in July 2016* Sandeep Puthanveetil Satheesan
	TerEx (ncsa.arcgis.floodplain)	Extractor	Identify the flat polygons and the heights inside a river valley.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-bd-cz/browse/terex_floodplain	Qina Yan Smruti Padhy
	Topographic Depressions	Extractor	Identify topographic depressions (TDs) and their distribution on landscape (Number, location, area, volume of TDs).	https://github.com/HydroComplexity/TDI	Phong Le Sandeep Puthanveetil Satheesan

	Tree Delineation	Converter	Tree-wise voxelization of waveform data for **lidar** metrics that describes canopy structure (max intensity, height, etc...). Individual tree delineation, tree leaf area density to describe vertical leaf distribution.	https://opensource.ncsa.illinois.edu/bitbucket/projects/BD/repos/ir-lidar/browse	Kunxuan Wang Sandeep Puthanveetil Satheesan
	Valley Safety Zones	Extractor	Estimate submerging areas and water depths under extreme floods and map the safety zones in a river valley.		Qina Yan Sandeep Puthanveetil Satheesan
	Vegetation Indices	Extractor	Calculating vegetation indices such as NDVI and Surface Temperature from Landsat 7 and 8 **satellite** data.		Debsunder Dutta (debsunderdutta@gmail.com) *leaving in July 2016* *Sandeep Puthanveetil Satheesan*
Ecology	**netcdf** (ncdump)	Converter	Convert from binary netcdf to text.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-ncdump/browse	Kenton McHenry
	PEcAn (PEcAn#Ameriflux)	Converter	Convert Ameriflux data to PEcAn's netcdf CF format.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-pecan/browse	Rob Kooper Kenton McHenry
	PEcAn (PEcAn#DALEC)	Converter	Convert PEcAn's netcdf CF format to the format required by the DALEC model.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-pecan/browse	Rob Kooper Kenton McHenry
	PEcAn (PEcAn#ED2)	Converter	Convert PEcAn's netcdf CF format to the format required by the ED model.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-pecan/browse	Rob Kooper Kenton McHenry
	PEcAn (PEcAn#LINKAGES)	Converter	Convert PEcAn's netcdf CF format to the format required by the LINKAGES model.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-pecan/browse	Rob Kooper Kenton McHenry
	PEcAn (PEcAn#Sipnet)	Converter	Convert PEcAn's netcdf CF format to the format required by the Sipnet model.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-pecan/browse	Rob Kooper Kenton McHenry

	PEcAn (PEcAn#AmerifluxBNL) **PEcAn** (PEcAn#FLUXNET2015) **PEcAn** (PEcAn#FACE) **PEcAn** (PEcAn#PALEON) **PEcAn** (PEcAn#NLDAS) **PEcAn** (PEcAn#CURNCEP) **PEcAn** (PEcAn#GLDAS) **PEcAn** (PEcAn#GFDL) **PEcAn** (PEcAn#BIOCRO) **PEcAn** (PEcAn#CLM) **PEcAn** (PEcAn#GDAY) **PEcAn** (PEcAn#JULES) **PEcAn** (PEcAn#LPJ-GUESS) **PEcAn** (PEcAn#MAAT) **PEcAn** (PEcAn#MAESPA) **PEcAn** (PEcAn#PRELES)				Yan Zhao Rob Kooper
	PlantCV (terra.plantcv)	Extractor	Extract plant height, area, and color distribution from photographs.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-plantcv/browse	Yan Liu
Civil & Environmental Engineering	**Body of Water Detector** (ncsa.image.ponddetect)	Extractor	Land coverage, extract locations of bodies of water from **satellite** data.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-maps/browse/feature_detection	Ankit Rai Marcus Slavenas
	GI Identification	Extractor			Ankit Rai Marcus Slavenas
	Human Preference Score (ncsa.image.humanpref)	Extractor	Assign a model derived human preference score to a given image of an urban environment.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-maps/browse/humanpref	Ankit Rai Marcus Slavenas
	Route Greenness (ncsa.xml.greenindexroute)	Extractor	Derive the green index of a city route.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-maps/browse/greenroute	Marcus Slavenas
	Social Media GI Preferences	Extractor			Ankit Rai Marcus Slavenas
	Stanford CoreNLP - Sentiment (ncsa.nlp.SNLPSentiment)	Extractor	Assign a sentiment score to a piece of text.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-nlp/browse/SNLP/SNLPSentimentExtractor	Ankit Rai Marcus Slavenas
	TUV Triaxus	Extractor			Ankit Rai Marcus Slavenas

Social Science & Humanities	**Bertillon Card Cell Extractor** (ncsa.image.dmp)	Extractor	Extract table cells from a Bertillon Card.	https://opensource.ncsa.illinois.edu/bitbucket/projects/DEBOD/repos/extractors-debod	Sandeep Puthanveetil Satheesan
	Census Form Cell Extractor (census-section-segmentor)	Extractor	Extract table cells from a 1930s Census form.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-cv/browse/census	Inna Zharnitsky
	Handwritten Decimals Extractor (ncsa.image.sphog.debod)	Extractor	Extract handwritten decimal values from an image.	https://opensource.ncsa.illinois.edu/bitbucket/projects/DEBOD/repos/extractors-handwrittendecimals	Sandeep Puthanveetil Satheesan
	Killed Photos (ncsa.image.iarp_remove_circle)	Extractor	Identify depression era photos "killed" by Farm Security Administration director Roy Stryker, indicated by a hole punch in the image.	https://opensource.ncsa.illinois.edu/bitbucket/projects/IARP/repos/image_fetcher/browse/extractors/remove_circle	Marcus Slavenas
	Mean Grey (ncsa.cv.meangrey)	Extractor	Mean grey values of black and white photos.	https://opensource.ncsa.illinois.edu/bitbucket/projects/IARP/repos/image_fetcher/browse/extractors/mean_grey	Marcus Slavenas
	Movie Slice (ncsa.movieslice)	Extractor		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-movieslice/browse	Sandeep Puthanveetil Satheesan
	Person Detector (person-detector)	Extractor	Extract locations of people in an image.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-person-detector	Sandeep Puthanveetil Satheesan
	Person Tracker (ncsa.person-tracker)	Extractor	Extract locations and paths of people moving in videos.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-person-tracking	Sandeep Puthanveetil Satheesan
	Video Analytics Toolbox (ncsa.cinemetrics_batch)	Extractor	Extract shot descriptors from videos.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-lsva-integrated/browse	Sandeep Puthanveetil Satheesan
Biology, Genomics, Medicine	**FSL** (mri2mesh)	Extractor		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-mri/browse/mri2mesh	Marcus Slavenas
	Glomeruli (ncsa.msc.diagnosis)	Extractor	Extract glomeruli from Kidney biopsy images.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-msc/browse/Kidney	Yan Zhao

General

Domain	Tool	Type	Description	Repositories	Contact
	Calibre (ebook-converter)	Converter	Convert e-books to a number of document formats.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-ebook-convert/browse	
	CMU Sphinx (ncsa.audio.speech2text)	Extractor	Audio recognition to extract text for speech within audio.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-core/browse/audio/speech2text	Marcus Slavenas
	Daffodil (daffodil)	Converter	Convert formats with a provided DFDL schema to XML.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-daffodil/browse	Kenton McHenry
	DBPedia (ncsa.dbpedia)	Extractor	Find and define named entities within the given text.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-dbpedia/browse	Luigi Marini
	FFmpeg (ffmpeg)	Converter	Convert between a large number of video formats.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-ffmpeg/browse	Marcus Slavenas Bing Zhang
	FLAC (flac)	Converter	Convert to and from the FLAC format from other audio formats.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-flac/browse	Bing Zhang
	Ghostscript (ghostscript)	Converter	Convert between document formats.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-ghostscript/browse	Bing Zhang
	htmldoc (htmldoc)	Converter	Convert HTML to a number of document formats.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-htmldoc/browse	Kenton McHenry
	ImageMagick (ImageMagick)	Converter	Convert between a large number of image formats.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-imagemagick/browse	Kenton McHenry

General	**ImageMagick** (ncsa.image.metadata)	Extractor	Pull available EXIF image metadata from a given image.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-core/browse/image/metadata	Maxwell Burnette Rob Kooper
	Kabeja (kabeja)	Converter	Convert between a handful of 3D and image formats.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-kabeja/browse	
	OpenCV - Faces (ncsa.cv.faces)	Extractor	Find faces in an image and return their locations.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-cv/browse/extractors-opencv/extractors-opencv-faces	Kenton McHenry
	OpenCV - Eyes (ncsa.cv.eyes)	Extractor	Find eyes in an image and return their locations.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-cv/browse/extractors-opencv/extractors-opencv-eyes	Kenton McHenry
	OpenCV - Closeups (ncsa.cv.closeups)	Extractor	Determine whether an image is a closeup of a person or not.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-cv/browse/extractors-opencv/extractors-opencv-closeups	Kenton McHenry
	OpenCV - Profiles (ncsa.cv.profiles)	Extractor	Find human face profiles in an image and return their locations.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-cv/browse/extractors-opencv/extractors-opencv-profiles	Kenton McHenry
	Langid (ncsa.nlp.simplelanguage)	Extractor	Identify the language of the given text.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-nlp/browse/SimpleLanguage	Gregory Jansen
	LibreOffice (unoconv)	Converter	Convert to and from a variety of document formats.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-unoconv/browse	Bing Zhang
	NLTK - Summary (ncsa.nlp.simplesummary)	Extractor	Summarize a body of text.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-nlp/browse/SimpleSummary	Gregory Jansen
	Siegfried (siegfried)	Extractor	Extract information about a given file relevant to identifying its type and validating its format.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-siegfried/browse	Gregory Jansen
	Stanford CoreNLP (ncsa.nlp.SNLP)	Extractor	Natural Language Process extractions such as parts of speech, named entities, langauge, etc.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-nlp/browse/SNLP/SNLPExtractor	
	Tesseract (ncsa.image.ocr)	Extractor	Object Character Recognition (OCR) to extract text from images containing text.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-cv/browse/extractors-tesseract	Kenton McHenry
	Tika (ncsa.nlp.tika)	Extractor	Document extractions such as language identification, ...	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-nlp/browse/tika	Kenton McHenry
	txt2html (txt2html)	Converter	Convert text documents to HTML.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-txt2html/browse	Kenton McHenry
	Versus - Color Distribution (ncsa.versus.image)	Extractor	Generate a distribution of color values within an image to be used for comparing how similar two images are.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-versus/browse	Kenton McHenry Bing Zhang
	VLFeat (ncsa.image.caltech101)	Extractor	Classify images as to whether they contain objects from the Caltech101 dataset (e.g. people, airplanes, motorcycles, cougars, ...).	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-cv/browse/extractors-vlfeat	Kenton McHenry
	Zip (zip)	Converter	Unzip zip archives.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-zip/browse	Kenton McHenry Bing Zhang

https://opensource.ncsa.illinois.edu/confluence/display/BD/Transformations *(Under development, Being Refactored)*