

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	Extract or	Determine the mean age of chemical constituents with inputs of chemical dynamics.		Dong Kook Woo Sandeep Puthanveetil Satheesan
	Document Tables Extractor (nca.nlp.wordtables)	Extract or	Extract tables from documents.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-nlp/browse/WordTablesExtractor	
	GDAL (nca.geo.shpExtractor)	Extract or		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-geo/browse	Smruti Padhy Jong Lee
	GDAL (nca.geo.tiffExtractor)	Extract or		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-geo/browse	Smruti Padhy Jong Lee
	GDAL (nca.image.geotiff)	Extract or		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-geotiff/browse	Mostafa Elag Jong Lee
	Historical River Extractor (nca.cv.river)	Extract or	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 (nca.arcgis.landsat7mosaic)	Extract or		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-bd-cz/browse/ndviextractor	Smruti Padhy
	River Chi Index	Extract or	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	Extract or	Study the maturity and equilibrium conditions of a stream through the sinuosity index.		Qina Yan Sandeep Puthanveetil Satheesan
	Soil Moisture Change	Extract or	Determine role of hydraulic redistribution in AZ (riparian site / upland site) by studying soil moisture change throughout different seasons.		Esther Lee (esther2010@gmail.com) Sandeep Puthanveetil Satheesan
	Species Classifier	Extract or	SAM based Species Classification from Hyperspectral data, Hyperspectral Indices, NDVI, SAVI, MSAVI, etc.		Debsunder Dutta (debsunderdutta@gmail.com) <i>leaving in July 2016</i> Sandeep Puthanveetil Satheesan
	TerEx (nca.arcgis.floodplain)	Extract or	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	Extract or	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	Convert er	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	Extract or	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	Extract or	Calculating vegetation indices such as NDVI and Surface Temperature from Landsat 7 and 8 satellite data.		Debsunder Dutta (debsunderdutta@gmail.com) <i>leaving in July 2016</i> Sandeep Puthanveetil Satheesan
Ecology	netcdf (ncdump)	Convert er	Convert from binary netcdf to text.	https://opensource.ncsa.illinois.edu/bitbucket/projects/POL/repos/converters-ncdump/browse	Kenton McHenry
	PEcAn (PEcAn#Ameriflux)	Convert er	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)	Convert er	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)	Convert er	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)	Convert er	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)	Convert er	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

	<p>PEcAn (PEcAn#AmerifluxB NL)</p> <p>PEcAn (PEcAn#FLUXNET2 015)</p> <p>PEcAn (PEcAn#FACE)</p> <p>PEcAn (PEcAn#PALEON)</p> <p>PEcAn (PEcAn#NLDAS)</p> <p>PEcAn (PEcAn#CURNCEP)</p> <p>PEcAn (PEcAn#GLDAS)</p> <p>PEcAn (PEcAn#GFDL)</p> <p>PEcAn (PEcAn#BIOCRO)</p> <p>PEcAn (PEcAn#CLM)</p> <p>PEcAn (PEcAn#GDAY)</p> <p>PEcAn (PEcAn#JULES)</p> <p>PEcAn (PEcAn#LPJ- GUESS)</p> <p>PEcAn (PEcAn#MAAT)</p> <p>PEcAn (PEcAn#MAESPA)</p> <p>PEcAn (PEcAn#PRELES)</p>				<p>Yan Zhao</p> <p>Rob Kooper</p>
	PlantCV (terra. plantcv)	Extract or	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)	Extract or	Land coverage, extract locations of bodies of water from s atellite data.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-maps/browse/feature_detection	Ankit Rai Marcus Slavenas
	GI Identification	Extract or			Ankit Rai Marcus Slavenas
	Human Preference Score (ncsa.image. humanpref)	Extract or	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)	Extract or	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	Extract or			Ankit Rai Marcus Slavenas
	Stanford CoreNLP - Sentiment (ncsa. nlp.SNLPSentiment)	Extract or	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	Extract or			Ankit Rai Marcus Slavenas

Social Science & Humanities	Bertillon Card Cell Extractor (nca.image.dmp)	Extract or	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)	Extract or	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 (nca.image.sphog.debod)	Extract or	Extract handwritten decimal values from an image.	https://opensource.ncsa.illinois.edu/bitbucket/projects/DEBOD/repos/extractors-handwrittendecimals	Sandeep Puthanveetil Satheesan
	Killed Photos (nca.image.iarp_remove_circle)	Extract or	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 (nca.cv.meangrey)	Extract or	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 (nca.movieslice)	Extract or		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-movieslice/browse	Sandeep Puthanveetil Satheesan
	Person Detector (person-detector)	Extract or	Extract locations of people in an image.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-person-detector	Sandeep Puthanveetil Satheesan
	Person Tracker (nca.person-tracker)	Extract or	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 (nca.cinemetrics_batch)	Extract or	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)	Extract or		https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-mri/browse/mri2mesh	Marcus Slavenas
	Glomeruli (nca.msc.diagnosis)	Extract or	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 (nca.audio.speech2text)	Extract or	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 (nca.dbpedia)	Extract or	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 (nca.image.metadata)	Extract or	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 (nca.cv.faces)	Extract or	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 (nca.cv.eyes)	Extract or	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 (nca.cv.closeups)	Extract or	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 (nca.cv.profiles)	Extract or	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 (nca.nlp.simplelanguage)	Extract or	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 (nca.nlp.simplesummary)	Extract or	Summarize a body of text.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-nlp/browse/SimpleSummary	Gregory Jansen
	Siegfried (siegfried)	Extract or	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 (nca.nlp.SNLP)	Extract or	Natural Language Process extractions such as parts of speech, named entities, language, etc.	https://opensource.ncsa.illinois.edu/bitbucket/projects/CATS/repos/extractors-nlp/browse/SNLP/SNLPExtractor	
	Tesseract (nca.image.ocr)	Extract or	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 (nca.nlp.tika)	Extract or	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 (nca.versus.image)	Extract or	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 (nca.image.caltech101)	Extract or	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)