

Function	Methodology	Software Component
Data Mining	Machine Learning	TensorFlow
4th Industrial Revolution	Artificial Intelligence	Keras
Data Science	Deep Learning	Horovod
Data Processing	Neural Networks	R
	Statistical Analysis	R-Studio
	Matrix and Array Mathematics	Python
	Big Data	Jupyter Notebooks
		SAS
		MATLAB
		Starlink
		Octave
Computing Discrete Fourier Transform	Real and Complex Data	FFTW
Image Processing	General Image processing	MATLAB
	Photogrammetric Processing	
	3D Spatial Data	MetaShape
	Digital Photogrammetry	
Distributed Computing	Parallel Processing	Intel MPI Open MPI
Queuing System	Resource Management	PBS Torque
	Task Scheduler	Maui
Software Optimization	Software Compilation Tools	GNU GCC Intel Parallel Studio Portland Compiler

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Automation	Scripting	Bash Puppet Jenkins Environmental Modules
Genetics	Animal Genetics	Blupf90
	Quantitative Genetic Analyses	Wombat
Bio-Informatics & Genomics	Phylogenetic Analysis Mapping Assembly	CLC Genomics Workbench, Geneious Prime, and +100 other applications
	Denovo Assembly	SCons
	Mass Spectrometry	Mascot
	Analysis of Protein Structures	Rosetta
	Material Modelling Analytic Frequency Calculations Density Functional Theory (DFT) Modelling Quantum Mechanical Modelling Complex Wavefunctions	VASP Gaussian ADF Quantum ESPRESSO ORCA GAMESS NBO
Material Modelling	Electronic-Structure Calculations Density-Functional Theory Plane Waves Pseudopotentials	Quantum ESPRESSO

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Molecular Dynamics	Newtonian Equations of Motion	Gromacs
	General Atomic and Molecular Electronic Structure System	GAMESS
	Biomolecular Simulation	Amber
Geospatial	Aerial Imagery	NGI Datasets Geonetwork
	Geographic Information System	GRASS
Computational Fluid Dynamics	Astrophysical	Pluto
	Fluid Flows	
	Electromagnetics	
	Solid Mechanics	OpenFOAM
	Heat Transfer	
Plasma Physics	Solving Partial Differential Equations	Chombo
High Energy Physics	Numerical Programming Vector Arithmetic Geometry Pseudorandom Number Generation Linear Algebra	CLHEP
Data Visualization	Astronomical Imaging	SAOImage DS9
	Complex Numerical Data	IDL
	Hera data analysis	HEAsoft
	Cosmic Microwave Background	HEALPix
	Complex Numerical Data Analysis	IDL
	General	MATLAB

Function	Methodology	Software Component
Monte Carlo Simulations	Propagation of Photons, Electrons and Positrons	EGSnrc
Gamma-ray Space Telescope	Analyse Fermi Data	Fermi Science Tools
Molecular Structures	X-ray Crystallography	PHENIX