Figure: Overview of trajectory inference methods. Panel a) Method characteristics including Priors required, Wrapper type, Platform, Topology inference, and Inferrable trajectory types (Cycle, Linear, Bifurcation, Multifurcation, Tree, Connected, Disconnected). Panel b) Summary of aggregated scores per experiment (Overall, Accuracy, Scalability, Stability, Usability).

Graph methods

Method	Priors required	Wrapper type	Platform	Topology inference
PAGA	×	Traj	Python	Free
RaceID / StemID		Proj	R	Free
SLICER	×	Cell	R	Free

Tree methods

Method	Priors required	Wrapper type	Platform	Topology inference
PAGA Tree	×	Traj	Python	Free
Slingshot		Traj	R	Free
MST		Proj	R	Free
pCreode		Proj	Python	Free
Monocle DDRTree		Cell	R	Free
SCUBA		Cluster	Python	Free
Monocle ICA	×	Cell	R	Param
cellTree maptpx		Cell	R	Free
SLICE		Traj	R	Free
Sincell		Cell	R	Free
ElPiGraph		Traj	R	Free
cellTree VEM		Cell	R	Free
URD	×	Traj	R	Free
CellTrails		Cell	R	Free
CellRouter	×	Cell	R	Free
Mpath	✖	Cluster	R	Free

Multifurcation methods

Method	Priors required	Wrapper type	Platform	Topology inference
STEMNET	✖	Prob	R	Param
FateID	✖	Prob	R	Param
MFA	×	Prob	R	Param
GPfates	×	Prob	Python	Param

Bifurcation methods

Method	Priors required	Wrapper type	Platform	Topology inference
DPT		Traj	R	Fixed
Wishbone	×	Traj	Python	Param

Linear methods

Method	Priors required	Wrapper type	Platform	Topology inference
SCORPIUS		Linear	R	Fixed
TSCAN		Linear	R	Fixed
MATCHER		Linear	Python	Fixed
Embeddr		Linear	R	Fixed
Wanderlust	×	Linear	Python	Fixed
Waterfall		Linear	R	Fixed
ElPiGraph linear		Traj	R	Fixed
PhenoPath		Linear	R	Fixed
topslam	×	Linear	Python	Fixed
FORKS		Linear	Python	Fixed
ouijaflow		Linear	Python	Fixed

Cyclic methods

Method	Priors required	Wrapper type	Platform	Topology inference
Angle		Cycle	R	Fixed
ElPiGraph cycle		Traj	R	Fixed
reCAT		Cycle	R	Fixed

Prior information required

None

× Weak: Start or end cells

✖ Strong: Cell grouping or time course