# Resource Summary Report

Generated by dkNET on May 19, 2025

## Autopack

RRID:SCR_006830
Type: Tool

### Proper Citation

Autopack (RRID:SCR_006830)

### Resource Information

**URL:** http://www.autopack.org/

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**Description:** An open-source general packing algorithm that packs 3D objects onto surfaces, into volumes, and around volumes. It provides a general architecture to allow various packing algorithms to interoperate efficiently in the same model. autoPack can incorporate any packing solution into its modular python program architecture, but is currently optimized to provide a novel solution to the loose packing problem which places objects of discrete size into place (compared to advancing front, popcorn, or other fast tight-packing solutions that allow objects to scale to arbitrary masses.) Most popular 3D software programs now contain robust physics engines based on Bullet that can separate small collections of overlapping objects or allow volumes to be filled by pouring shapes from generators, but these approaches fails for large complex systems and result in either overlapping geometry, crashed software, or non-random gradients. Most packing algorithms are designed to position objects as efficiently as possible, but autoPack allows the user to select from random loose packing to highly organized packing methods??????even to choose both methods at the same time. autoPack positions 3D geometries into, onto, and around volumes with minimal to zero overlap. autoPack mixes several packing approaches and procedural growth algorithms. autoPack can thus place objects with forces and constraints to allow a high degree of control ranging from completely random distributions to highly ordered structures. * zero to minimal overlaps depending on the method used * accuracy vs speed parameters selected by the user * zero edge effects * complete control, from fully random to fully ordered distributions * agent-based interaction, weighting, and collision control

**Abbreviations:** autoPack

**Resource Type:** software resource, software application, data processing software

**Keywords:** 3d visualization software, modeling software, 3d packing software, packing, 3d object, surface, volume, algorithm

**Funding:** QB3 at UCSF Fellowship ;
NSF 07576;
NCRR P41 RR08605

**Availability:** GNU Lesser General Public License

**Resource Name:** Autopack

**Resource ID:** SCR_006830

**Alternate IDs:** nlx_151791

**Alternate URLs:** https://sites.google.com/site/autofill21/, http://code.google.com/p/autofill/

**Record Creation Time:** 20220129T080238+0000

**Record Last Update:** 20250519T204512+0000

## Ratings and Alerts

No rating or validation information has been found for Autopack.

No alerts have been found for Autopack.

## Data and Source Information

**Source:** SciCrunch Registry

## Usage and Citation Metrics

We found 3 mentions in open access literature.

**Listed below are recent publications.** The full list is available at dkNET.

Keto L, et al. (2023) CellRemorph: A Toolkit for Transforming, Selecting, and Slicing 3D Cell Structures on the Road to Morphologically Detailed Astrocyte Simulations. Neuroinformatics, 21(3), 483.

Kadir SR, et al. (2021) Nanoscape, a data-driven 3D real-time interactive virtual cell environment. eLife, 10.

Johnson GT, et al. (2015) cellPACK: a virtual mesoscope to model and visualize structural

systems biology. Nature methods, 12(1), 85.