

Process

Chittu 13.14 is a purpose-built procedural generative art technology platform developed in-house by Chitrapata.

Preview of Chittu 13.14 closed beta release is available on an “invite-only” basis from March 2023. Visit the [homepage](#) and subscribe to our newsletter for regular updates.

Chittu 13.14 is primarily built using the Oracle Open Java Standard Edition Development Kit, with additional classes and aliased mathematical functions & operations for simplification. It is also enhanced with machine learning and artificial intelligence capabilities, including the ability to visualise convolutional networks, reconstruct images, synthesise textures, and transfer styles using neural networks. It will offer features such as makeover, super resolution, merging, patterns, texture, moods, feelings, aesthetics, restoration, proximity, style transfer, hairstyle, looks, and perspective.

We commit to open source our core codebase in the near future through public repositories. The details of the open source technology stack used are listed in the table below:

Programming platform	Oracle Open Java Standard Edition Development Kit 19.0.1 GNU General Public License
Integrated development environment	Apache NetBeans 15 Apache License 2.0 Eclipse IDE 2022-09 Eclipse Public License Atom 1.63.0 Massachusetts Institute of Technology License Jupyter Notebook 5.0 Berkeley Source Distribution (BSD) License 3
GPU API access library	Metal 3 Apple Public Source License (APSL)
Defect tracking system	trac 1.4 Berkeley Source Distribution (BSD) License
Statistical computing and graphics	R 4.1.3 GNU Affero General Public License 3
Mathematical libraries	NumPy 1.23.5, SciPy 1.6.0 Berkeley Source Distribution (BSD) License
Visualisation and plotting library	Matplotlib 3.6.2 Berkeley Source Distribution (BSD) License
Graphical library	Processing 4.0.1 GNU General Public License
Code repository*	GitHub 3.7.0 Creative Commons License
OS level virtualisation platform*	Docker Desktop 4.14.1 Apache License 2.0
Container orchestration system*	Kubernetes 1.25 Apache License 2.0
Data storage and processing framework*	lettuce - advanced Java Redis client Apache Derby 10.16.1.1 Hadoop 3.3.4 Apache License 2.0
Machine learning models	Deep learning, decision trees, random forest, linear regression, boosting, neural network, clustering and dimensionality reduction

Recently, there has been a rise in the use of large language models in the art industry, which allow machines to generate art with credible and sometimes exceptional results. We have examined some of these third-party software from the perspective of a visual artist to understand their capabilities and limitations: DALL·E2, released by OpenAI in January 2021, is an AI system that can generate original and realistic images and art from a short natural language description. Midjourney, released in July 2022, is a research lab that explores new mediums of thought and expands the creative abilities of humans. Stable Diffusion, released in August 2022, is a text-to-image model developed by the CompVis group at LMU Munich using deep learning and latent diffusion, a type of deep generative neural network. Visit the “[Text-to-image](#)” page for further details.

We have accumulated substantial technical debt due to our internal inefficiencies and chaotic approach to learning. To address this issue, we plan to refactor our code and improve its design, structure, and implementation, while still maintaining its original functionality. This refactoring process will allow us to implement a Serverless Stateless Microservices architecture, which will enable domain-driven design, continuous delivery, platform and infrastructure automation, scalable systems, polyglot programming, and persistence.

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