OpenCV turns 20!

- 2000 – The first public release
- 2005 – DARPA Challenge
- 2009 - OpenCV 2.0: Mobile and Python
- 2015 - OpenCV 3.0 and T-API
- 2016 - DNN module and JavaScript support
- 2018 - OpenCV 4.0 and C++11
- 2020 - OpenCV 5.0
OpenCV Library

- 45k stars on GitHub
- 1-2m installations per week
- 89% embedded vision engineers
- 2500 algorithms
OpenCV Sponsorships & Partnerships
Companies committed to open source software development. A donation of $100k in cash, developer time, or other resources.
OpenCV Gold Sponsorship Program

- A seat at the OpenCV advisory committee
- Press release and promotions via our email newsletter
- Option to contribute training courses, tutorials and blog posts
- Website mention
- Discount for Hardware Partnership
- GitHub pull request priority review
Companies who want to actively contribute to OpenCV’s software and hardware development efforts.

The annual fee is between $50k - $100k.

Development partners will also assign a few engineers to support the open source hardware or software effort they are interested in.
OpenCV Development Partnership Program

- Weekly technical meetings
- Will be designated OpenCV Development Expert after contributing employees pass requirement
- Press release and website mention
- Acknowledgement in release notes and change logs on GitHub and website
- Option to contribute training courses, tutorials and blog posts
Companies who want to submit hardware for OpenCV compliance.

One time set up fee of $50k for continuous testing.

Annual fee of $200k or more. The fee for your specific hardware will be evaluated during the initial setup.

- CPUs (e.g. Intel, AMD, ARM)
- GPUs (e.g. NVIDIA, Intel, AMD, ARM)
- Neural accelerators (e.g. Movidius, Jetson, Coral)
- Smart cameras
OpenCV Hardware Partnership Program

OpenCV hardware compliance logo
Technical meetings as needed
Press release and website mention
Option to contribute training courses, tutorials and blog posts
Paid consulting
OpenCV Content Partnership Program

Designed for companies who want to create high quality content on OpenCV.org for their software library, device, or framework.

OpenCV team will create the content, publish it on OpenCV.org, and promote it to newsletter subscribers and social media followers.

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<th>Type</th>
<th>Frequency</th>
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EVOLUTION BEYOND THE LIBRARY
OpenCV Ecosystem: Courses

1. Computer Vision I: Introduction
2. Computer Vision II: Applications
3. Deep Learning with PyTorch
OpenCV Ecosystem: OpenCV AI Kit (OAK)

Kickstarter

$1,358,318

6,564 backers
OpenCV Ecosystem: OpenCV AI Kit (OAK)

OAK-1
Smart Camera with real-time Neural Inference

OAK-D
Smart Camera with real-time Neural Inference + Depth Perception
OpenCV Ecosystem: OpenCV.ai

OpenCV.org
Non-profit
- Library development
- Membership program
- Courses
- Community

OpenCV.ai
For-profit
- Consulting services
- AI model marketplace
- Newsletter
- Products and APIs
Dr. Gary Bradski
President

Dr. Satya Mallick
CEO

Anna Petrovicheva
CTO
Traditional computer vision algorithms

Deep learning
  Training new models
  Optimizing models for speed, accuracy, and size

Edge AI solutions
  CPU, GPU, VPU, FPGA
Hardware
  Smart cameras
  Development boards
  VPU's
Computer vision software
Courseware
A marketplace for sharing AI models with the community

Models will be benchmarked by OpenCV

Models will be wrapped in a web API for each trial

Revenue sharing on paid models
Traffic light recognition, traffic sign detection and recognition, pedestrian and vehicle detection, lane departure warning implemented on a real car.
Neural Network Pruning for Vehicle Detection

TOP 5
In DETRAC AVSS17 vehicle detection challenge

> 10x
Smaller network than others in top-5
People Counting in Videos

Visitors: 9

50x
LESS WEIGHTS

370x
LESS COMPUTATIONS
People Detection on FPGA

600 Kb
Model Size

Implemented on an FPGA

Small model size

Also computed a precise view-agnostic projection to the 2D floor map — that can be used to analyze space utilization.
Sports Training

Lap time: 48s
Freestyle stroke: 42

Points: 40
Set: 3

Probability: 94%

swimming
tennis
basketball
The system detects the players and the ball and automatically move the camera — so that every movement is captured and broadcasted in a fully automated way.

The system works in real-time and is used all over the world.
Human Pose Tracking

TOP 10
CVPR19 LOOK INTO PERSON CHALLENGE

Pose tracking algorithms for human body pose analysis

Top 10 in CVPR19 Look-Into-Person challenge.

Highly optimized and fast
Face Recognition

512 Kb
RAM is enough for inference

Face Re-ID application

Low-power RISC-V device implementation

Model fits into 512 Kb L2 cache.

Showcased in ICCV 2019
Our solution for indoor scene understanding was ranked no. 1 on the biggest public benchmark in furniture segmentation in 2019.
RANKED 1ST
LNDB Tomography Segmentation Challenge, 2020

Our algorithms recognize tumors in liver, kidney and lungs.

We won one of the challenges in LNDb — a big public benchmark on computer tomography segmentation.

The paper is to be published on ICIAR2020 conference in June.
Roadmap 2020 - 2021

OpenCV library
• OpenCV 5.0
• Full support for ARM, GPU, FPGA, Movidius, NXP

OpenCV 20th anniversary celebrations
• OpenCV spatial AI competition sponsored by Intel
• Video series with luminaries

Newsletter and forum
• 1M registered users by 2021

OpenCV.ai
• Consulting services
• Store
• AI model marketplace

Courses
• Deep learning with Tensorflow
• Getting started with OpenCV AI Kit
Resources

OpenCV.ai

https://opencv.ai

OpenCV.org

https://opencv.org

OpenCV Courses

https://opencv.org/courses

OpenCV AI Kit (OAK)

https://opencv.org/opencv-ai-kit

OpenCV 20th Anniversary

https://opencv.org/anniversary

2020 Embedded Vision Summit

“OpenCV : Rapid Growth and Evolution Beyond the Library”

Sep 2020
Thank you

Satya Mallick, CEO OpenCV