



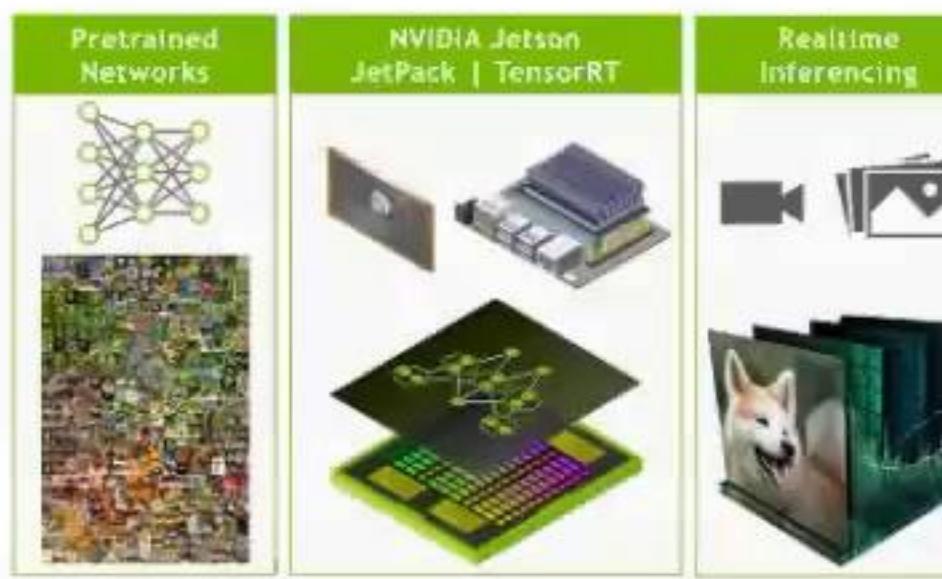
Jungwook Choi

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Get Started with these Projects



Jetbot



Hello AI World



JetRacer



Real-time Human Pose Estimation

Filters

 Q

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NVIDIA Frameworks ▼

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- Jetson AGX Orin
- Jetson AGX Xavier
- Jetson Nano
- Jetson Nano 2GB
- Jetson Orin NX
- Jetson TX2
- Jetson Xavier NX

NVIDIA Frameworks

Found 189 results

Project of the Month July 2022

SSL-Detector
João G. Melo

Nvidia HPC Autopilot
E Neto

WalrusEye
R Singh

JetClean
C Bendig Mundbjerg-Sunne

YOLO-ReT: Towards High Accuracy Real-time Object Detection on Edge GPUs
P Ganesh

NYC Land Cover Pseudo-segmentation and Analysis
N Kasmanoff

3D Recognizer

Autonomous Off-Road Land Rover

ROBOT ARM that can Detect and Avoid Obstacles

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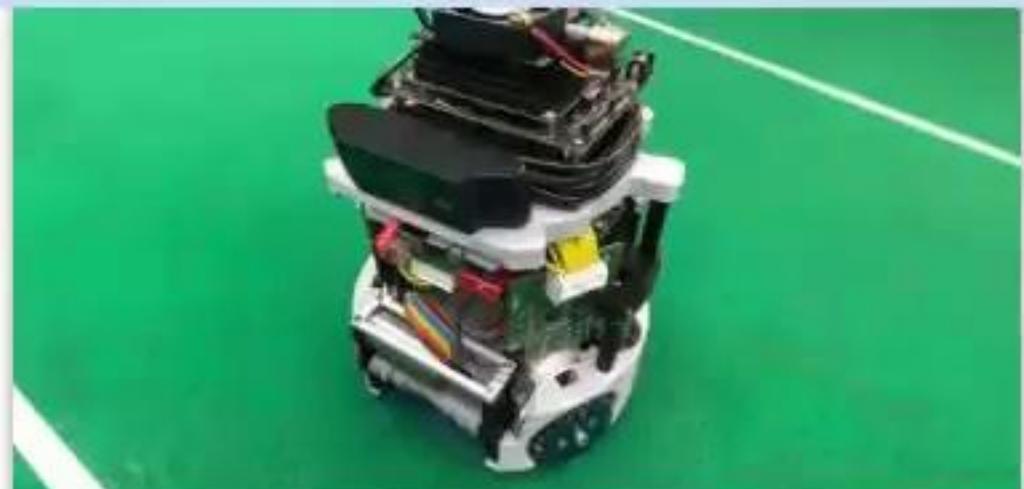
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- Jetson AGX Orin
- Jetson AGX Xavier
- Jetson Nano
- Jetson Nano 2GB
- Jetson Orin NX
- Jetson TX2
- Jetson Xavier NX

NVIDIA Frameworks

- CUDA
- DeepStream SDK
- Isaac ROS
- NVIDIA TAO Toolkit



Project of the Month July 2022

SSL-Detector

João G. Melo



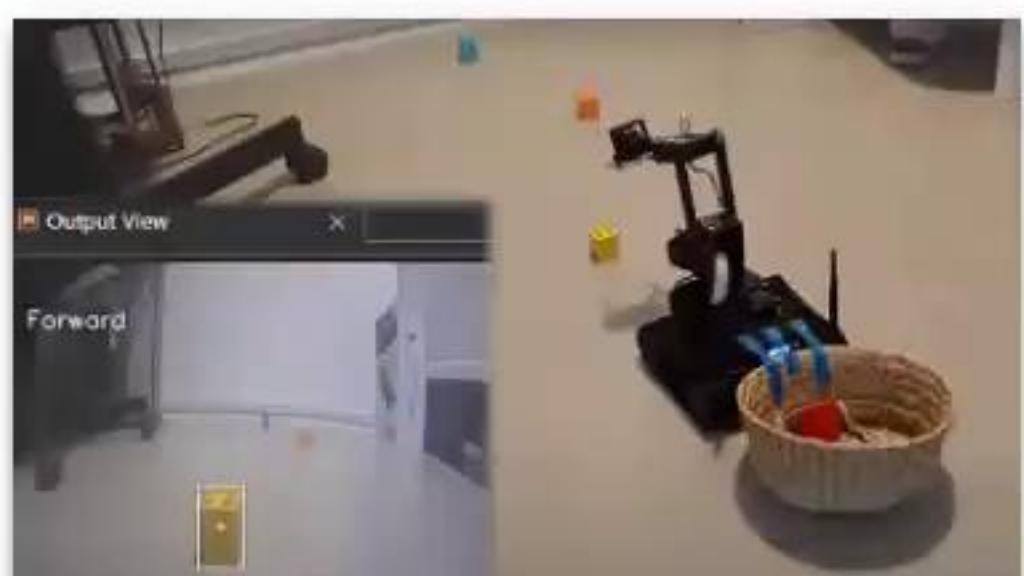
Nvidia HPC Autopilot

E Neto



WalrusEye

R Singh



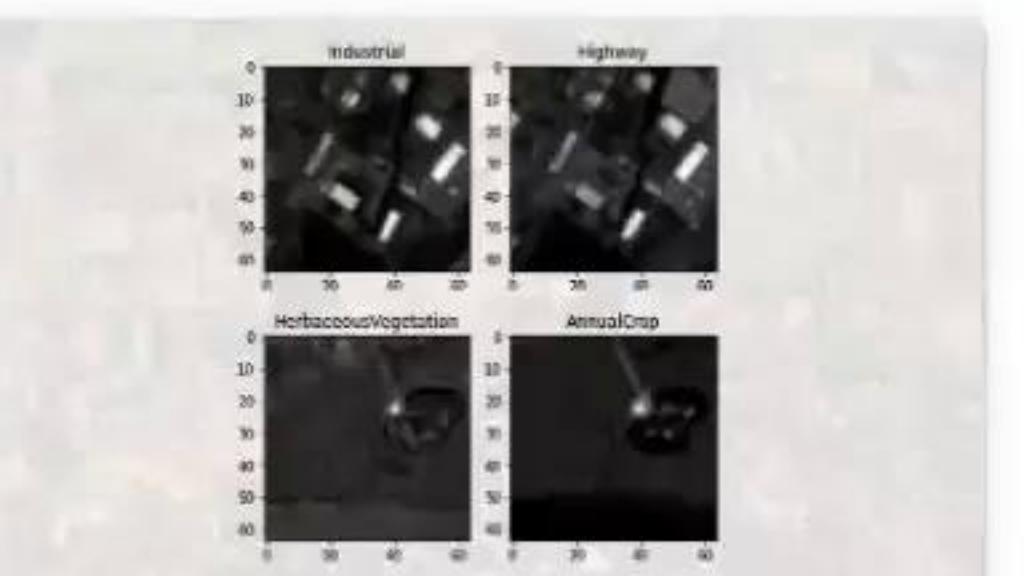
JetClean

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Featured Jetson Project

See all

Nanosaur
R Bonghi



LF2 - Easy Classroom Monitoring Tool for Teachers
D Lin



Realtime Neural Audio Synthesis
A Caillon



Project of the Month February 2022

Bus Prediction
E Gomtsyan



bus_number	Column A	Column B
bus_1	9:06:12	9:08:27
bus_2	9:19:33	9:21:01
bus_3	9:32:39	9:36:57
bus_4	9:45:17	9:48:27
bus_5	9:58:22	10:01:23
bus_6	10:12:53	10:13:47
bus_7	10:26:57	10:27:08
bus_8	10:39:28	10:38:33
bus_9	10:52:51	10:52:45
bus_10	11:04:45	11:08:51
bus_11	11:16:32	11:27:45
bus_12	11:30:29	11:42:32

Project of the Month May 2022

Bird@Edge
J Höchst, H Bellafkir, P Lampe, M Vogelbacher, M Mühling, D



Shanten Calculator
Toshiki H



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Featured Jetson Project

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Nanosaur
R Bonghi



LF2 - Easy Classroom Monitoring Tool for Teachers
D Lin



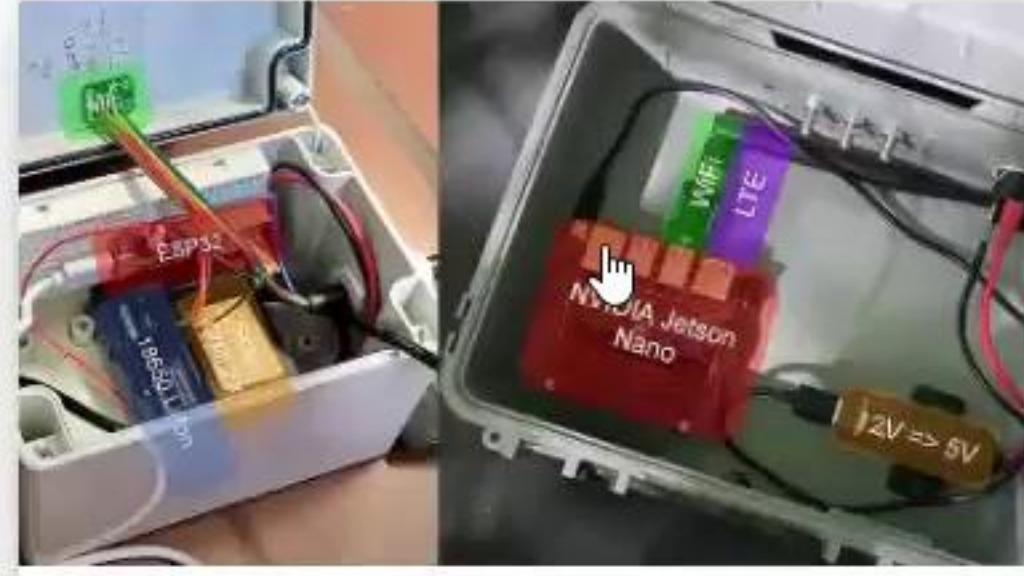
Realtime Neural Audio Synthesis
A Caillon



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bus_5	9:58:22	10:01:23
bus_6	10:12:53	10:13:47
bus_7	10:25:57	10:27:08
bus_8	10:39:28	10:38:33
bus_9	10:52:51	10:52:45
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Project of the Month February 2022

Bus Prediction
E Gomtsyan



Project of the Month May 2022

Bird@Edge

J Höchst, H Bellafkir, P Lampe, M Vogelbacher, M Mühlung, D Schneider, K Lindner, S Rösner, D Schabo, N Farwig, B Freisleben



Shanten Calculator
Toshiki H

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Project of the Month February 2022

Bus Prediction

E Gomtsyan

bus	arrive	depart
bus_2	9:19:33	9:21:01
bus_3	9:32:39	9:38:57
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bus_7	10:25:57	10:27:03
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Bird@Edge

J Höchst, H Bellafkir, P Lampe, M Vogelbacher, M Mühling, D Schneider, K Lindner, S Rösner, D Schabo, N Farwig, B Freisleben

Project of the Month May 2022

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J Höchst, H Bellafkir, P Lampe, M Vogelbacher, M Mühling, D Schneider, K Lindner, S Rösner, D Schabo, N Farwig, B Freisleben

Shanten Calculator

Toshiki H

Prevent Injuries During Saw Operation with Jetson Nano

Banknote Counter

Steinheilig

Guitar chord detection

R Waltzer

https://developer.nvidia.com/embedded/community/jetson-projects/banknote_counter ngyi ZHU

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bus_10	11:04:45	11:08:51
bus_11	11:16:32	11:27:45
bus_12	11:30:29	11:42:32

Bus Prediction

Predict bus arrival times with Jetson Nano. You can detect bus arrivals by locally processing a video stream from a simple camera connected via RTSP. Starting from a pretrained ImageNet model, capture images of passing buses and use them to refine the model so it can distinguish between scheduled and unscheduled buses in several weather conditions. Detected bus arrival times are logged and a predictive schedule is generated with GCP and BigQuery using Vertex AI. The arriving bus schedule can be communicated using Google IoT and home IoT devices such as Alexa.

Works with...

Jetson Nano

Authors

E Gomtsyan

Resources

View project repository

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Hongyi ZHU

Banknote Counter
Steinheilig

Guitar chord detection
R Waltzer

Fruit Quality Control with Jetson Nano
Aprende e Ingenia

Pytorch Driving Guardian
L Arevalo Oliver

Project of the Month January 2022
Mariola
T Tomanek

People Flow Analysis System
Ryoyo

Project of the Month March 2022
ROS, RTABMAP & Detectron2 Racecar
S Saha

Handwriting Classifier with Docker, Jetson Nano and Flask
I El Hanafi

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Guitar chord detection

R Waltzer

CONTROL DE CALIDAD DE FRUTAS EN TIEMPO REAL | Jetson Nano

PROYECTOS #5

Fruit Quality Control with Jetson Nano

Aprende e Ingenia

Pytorch Driving Guardian

L Arevalo Oliver

Mariola

T Tomanek

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Guitar chord detection

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Fruit Quality Control with Jetson Nano

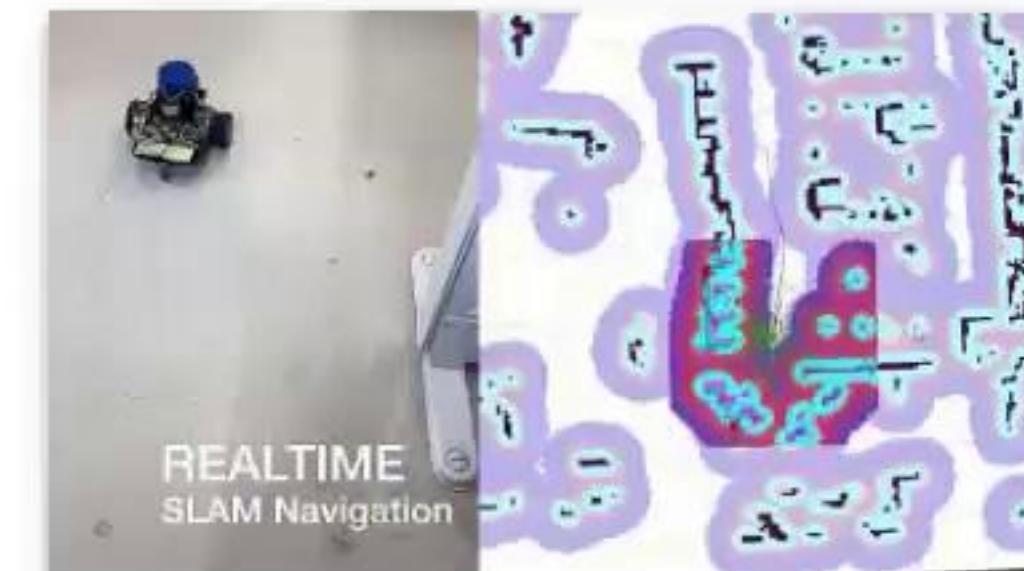
Aprende e Ingenia

Pytorch Driving Guardian

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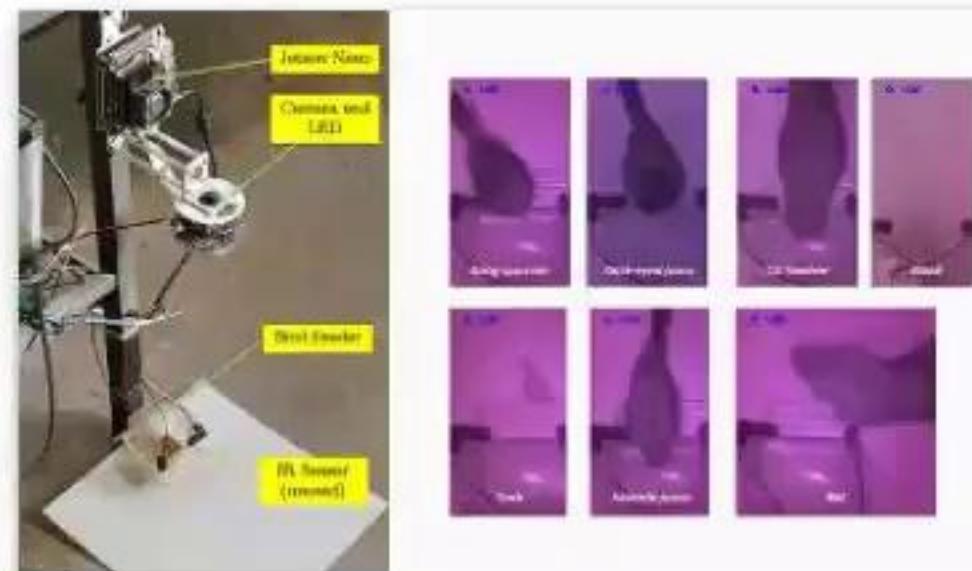
Mariola

T Tomanek



R1mini ROS2 SLAM Mapping and Navigation

OMOROBOT (Open Mobile Robot)

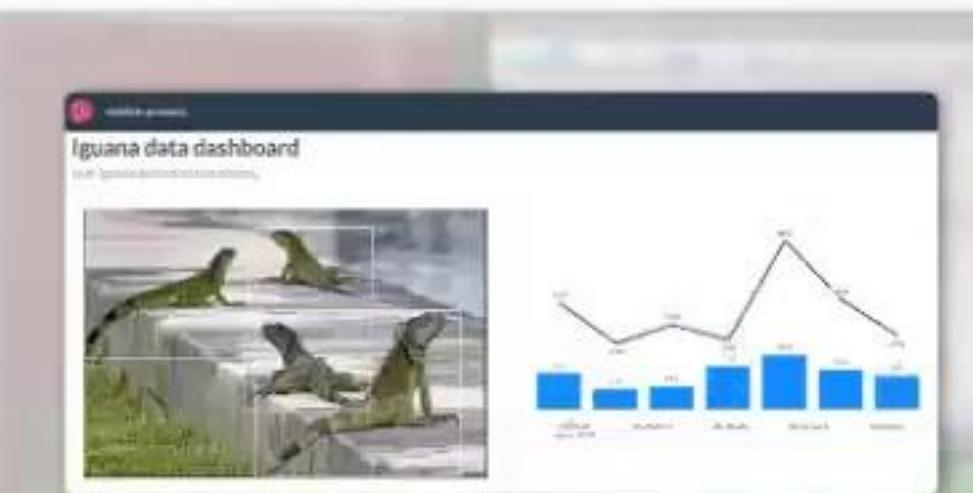


P Lertvilai



Ellee: A Talking Teddybear Powered by GPT-3 & Computer Vision

A Nalwan

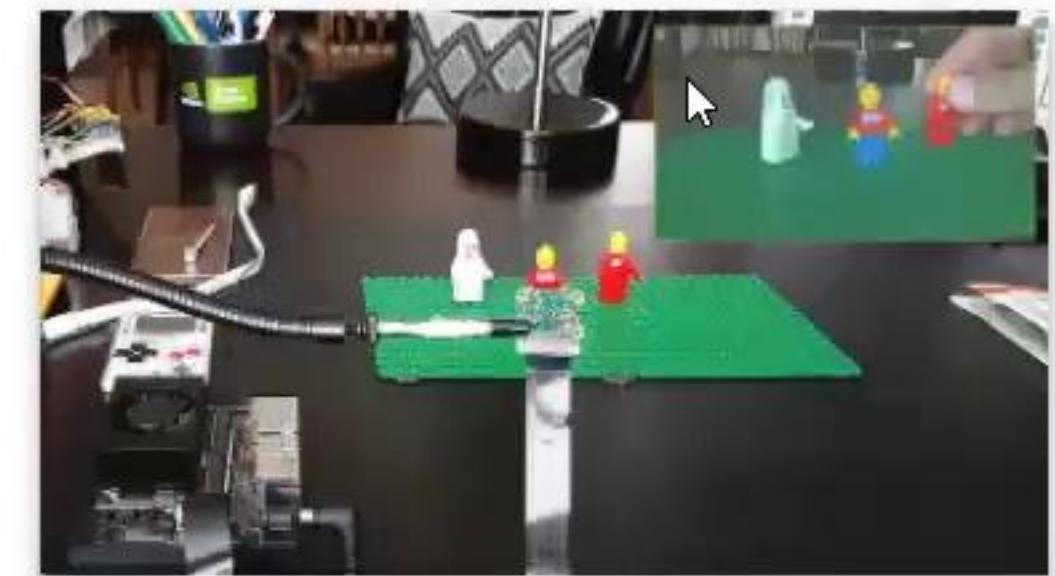


Green Iguana Detection and Surveillance

R Hsu, MetAI



D Niewinski



N Bild

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The screenshot displays a grid of nine project cards from the Jetson Community Projects website. Each card includes a thumbnail image, the project title, the author's name, and a brief description.

- R1mini ROS2 SLAM Mapping and Navigation** by OMOROBOT (Open Mobile Robot): A screenshot of a mobile robot navigating through a complex, colorful environment, overlaid with a map showing its path.
- BirdCam** by P Lertvilai: An image of a camera setup mounted on a tripod, with three small purple video frames showing bird identification results.
- Ellee: A Talking Teddybear Powered by GPT-3 & Computer Vision** by A Nalwan: A video frame showing a person interacting with a teddy bear, with a speech bubble saying "Really? I also love dogs too".
- Green Iguana Detection and Surveillance** by R Hsu, MetAI: A screenshot of a dashboard showing a live video feed of iguanas and a line graph of detection data over time.
- Weed Killing Robot** by D Niewinski: A photograph of a black and orange tracked robot equipped with a white cylindrical sprayer arm, positioned in a grassy field.
- Go Motion** by N Bild: A photograph of a robotic arm with a gripper holding a small green object, with a hand visible in the background.
- REALTIME SLAM Navigation** by OMOROBOT (Open Mobile Robot): A screenshot of a mobile robot navigating through a complex, colorful environment, overlaid with a map showing its path.
- Hydroponic Plant Monitoring System** by S. Kim: A photograph of a green plant growing in a hydroponic setup, with a small screen displaying monitoring data.
- Autonomous Vehicle Navigation** by J. Lee: A photograph of a yellow vehicle driving on a road, with a screenshot of a navigation map showing the vehicle's path.

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Self-Driving-ish Computer Vision System
iwatake

JetMax
Hiwonder

BabyWatcher
S Nakano

Cat Laser Turret Robot
D Niewinski

LabSentinel
N Maas

Project of the Month December 2021
Neurorack: A Deep AI-based Eurorack Synth
N Devis

<https://developer.nvidia.com/embedded/community/jetson-projects/neurorack>

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R Hsu, MetAI

The screenshot shows a grid of six project cards on the Jetson Community Projects website:

- Self-Driving-ish Computer Vision System** by iwatake: A car dashboard view with a heads-up display showing sensor data.
- JetMax** by Hiwonder: A robotic arm with a camera mounted on it, positioned next to a red cup and a small tree model.
- BabyWatcher** by S Nakano: A camera view of a baby in a crib, overlaid with a grid of small video frames showing different angles of the baby.
- Cat Laser Turret Robot** by D Niewinski: A cat walking towards a robotic laser turret mounted on a desk.
- LabSentinel** by N Maas: A schematic diagram of a power monitoring circuit connected to a BeagleBoard.
- Neurorack: A Deep AI-based Eurorack Synth** by Project of the Month December 2021: A photograph of a custom Eurorack modular synthesizer with various modules and cables.

https://developer.nvidia.com/embedded/community/jetson-projects/neurorack

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Green Guard Detection and Surveillance
R Hsu, MetAI

Self-Driving-ish Computer Vision System
iwatake

Cat Laser Turret Robot

<https://developer.nvidia.com/embedded/community/jetson-projects/babywatcher>

weed killing robot
D Niewinski

JetMax
Hiwonder

LabSentinel

BabyWatcher
S Nakano

Neurorack: A Deep AI-

Project of the Month December 2021

Intro to AI platform - L00 Syllabus BabyWatcher | NVIDIA Developer

developer.nvidia.com/embedded/community/jetson-projects/babywatcher

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BabyWatcher

For newborn babies, turning over and lying on their stomachs can be risk suffocation, so it is key to make sure they can sleep or stay in prone position. For their well-being, BabyWatcher monitors your newborn's position and detects if they are in prone or supine position. To create the transfer learning model, based on SSD-Mobilenet, training material was annotated with CVAT, exported into Pascal VOC format, merged into a single dataset, and automatically split into training/validation. The final transfer learning model is then converted into ONNX format.

Works with...

Jetson Nano

Authors

S Nakano

Resources

> View project repository

<https://developer.nvidia.com/embedded/community/jetson-projects/babywatcher>



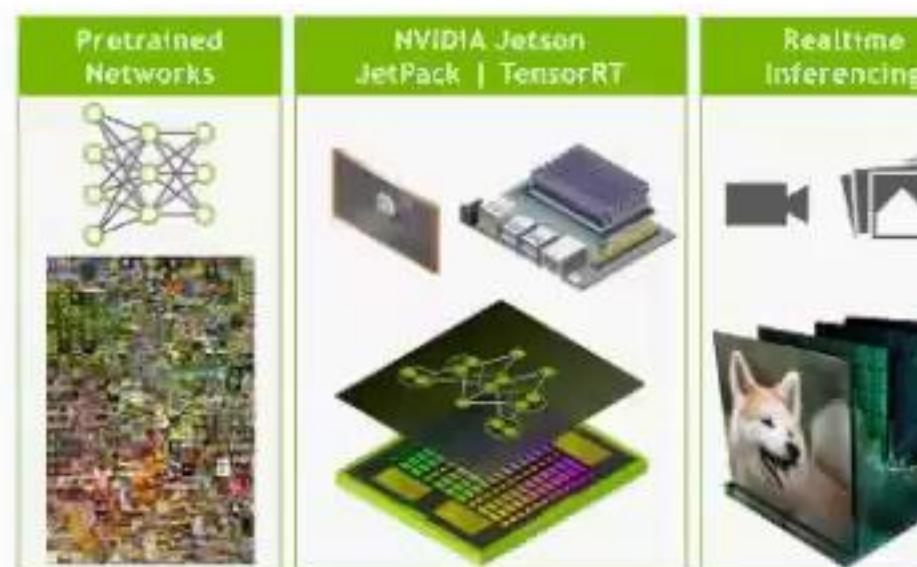
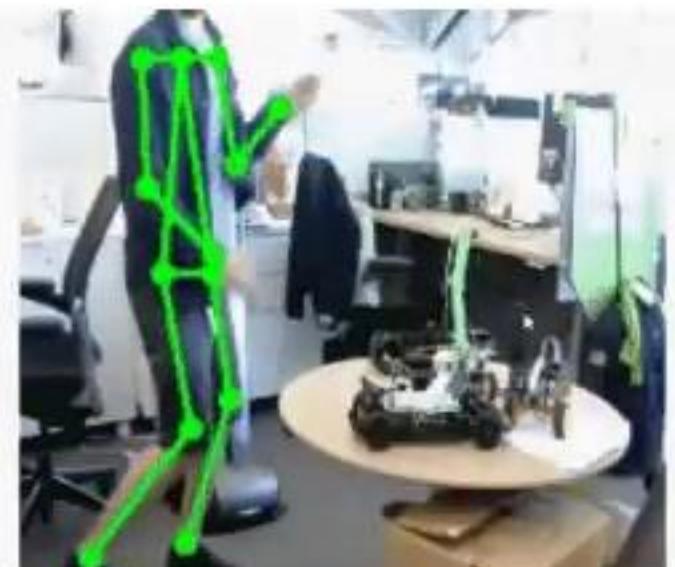
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Every month, we'll award one JETSON AGX ORIN Developer Kit to a project that's cut above the rest for its application, inventiveness, and creativity.

Welcome to the Jetson Projects forum!

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vip-member Using Jetbot with Jetson Orin Nano dev kit

Stable Diffusion on Jetson AGX Orin and Xavier

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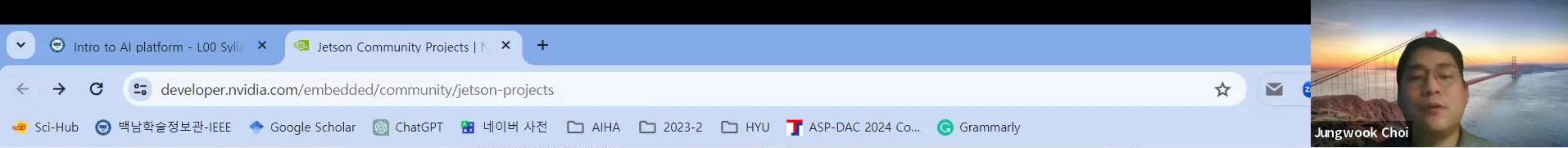
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ALL Jetson Nano Classifier

Project of the Month October 2021

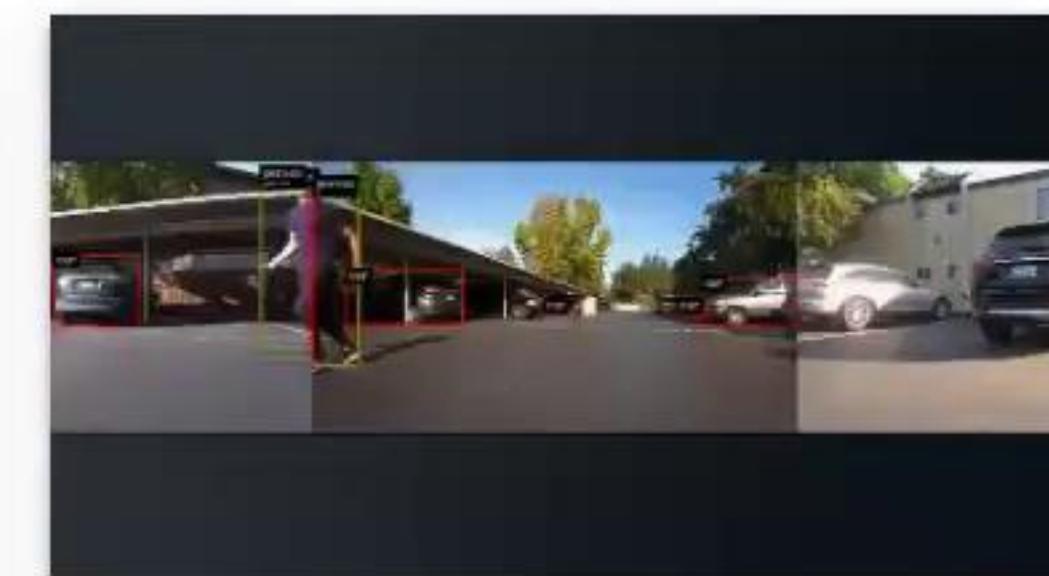
Acute Lymphoblastic Leukemia Classification with Jetson Nano

A Milton-Barker



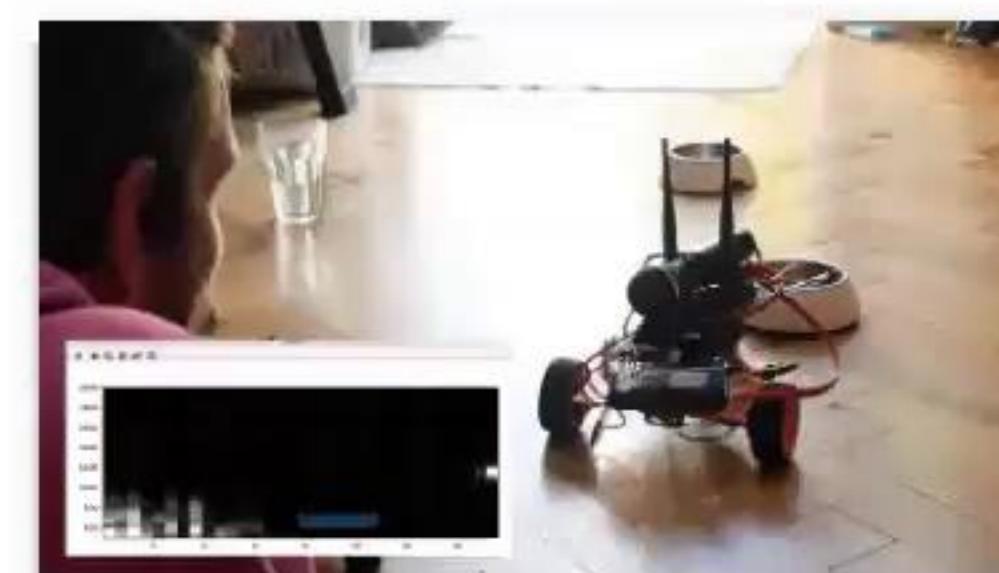
Robot Nano Hand

Silicon Highway



Jetson Multicamera Pipelines

T Lewicki



Sheepdog Whistle Neural Network



Beer Sherpa

D Niewinski



Dart Score Detector

K Kawasaki

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Project of the Month November 2021

LiveChess2FEN: A Chess Piece Classifying Framework

D Mallasén Quintana

AI for Healthcare with Jetson Nano 2GB

A Bhandare

SensorBox

Dr. H Lange, AIWerkstatt

Project of the Month October 2021

ALL Jetson Nano Classifier

Acute Lymphoblastic Leukemia Classification with Jetson Nano

A Milton-Barker

Robot Nano Hand

Silicon Highway

Jetson Multicamera Pipelines

T Lewicki

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Cat Laser Turret Robot
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다시 사용

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추가 기능

Jungwook Choi

Final Project Examples

- Jetson Community Projects

<https://developer.nvidia.com/embedded/community/jetson-projects> (Ex 1, Ex 2)

The screenshot shows the NVIDIA Developer website's "Community Gallery" section for Jetson projects. It features six thumbnail images of projects: "DESCRIPTIVE AI ON NANO" (a street scene with green highlights), "MONITORING WITH JETSON NANO" (a person in a green outline), "POSE ESTIMATION ON JETSON WITH OPENPIPERAF" (a crowded street scene), "DESCRIPTIVE AI ON NANO" (another street scene with green highlights), "MONITORING WITH JETSON NANO" (another person in a green outline), and "POSE ESTIMATION ON JETSON WITH OPENPIPERAF" (another crowded street scene). Below the thumbnails is a cookie consent banner from NVIDIA.

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슬라이드 7/11

한국어

접근성: 조사 필요

슬메모

75%

Final Project Examples



Jungwook Choi

- Jetson Community Projects

<https://developer.nvidia.com/embedded/community/jetson-projects> (Ex 1, Ex 2)

The screenshot shows a Chrome browser window displaying the NVIDIA Developer website at <https://developer.nvidia.com/embedded/community/jetson-projects>. The page is titled "Community Gallery" and features several project examples:

- DESCRIPTIVE AI** by D-KENDRI: A street scene with green text overlays.
- MONITORING WITH JETSON NANO** by R LO: A monitoring interface showing a person's skeleton and a camera feed.
- POSE ESTIMATION ON JETSON WITH OPENPIPPAF** by GALLUDT: A street scene with people's skeletons overlaid.
- INTERACTIVE MUSIC** by S. H. KIM: A person playing a guitar with a green interface overlay.
- FACE RECOGNITION** by S. H. KIM: A hallway scene with people's faces highlighted.
- PERSON COUNTING** by S. H. KIM: A diagram illustrating a person counting system.

At the bottom, there is a cookie consent banner from NVIDIA.

Final Project Examples



- Social distancing monitoring system (위대은, 최정훈, 김형민, 2021)



Course Schedule



- 16-week course (IC-PBL, schedule can be changed...)
 - (Tentative) Invited Lecture* from an industry expert

W1	3/5 3/8	Syllabus Intro to Deep Learning		W9	4/30 5/3	Deep Learning Platform	Lab 8 (Linux)
W2	3/12 3/15	DL: Basic Concepts 1	Lab 1 (Neural Network)	W10	5/7 5/10	Implementing CNN	Lab 9 (Jetson)
W3	3/19 3/22	DL: Basic Concepts 2	Lab 2 (DL Apps)	W11	5/14 5/17	Accelerating CNN	Lab 10 (TensorRT)
W4	3/26 3/29	Deep Learning Framework	Lab 3 (Pytorch)	W12	5/21 5/24	Final project proposal	(Final project announcement)
W5	4/2 4/5	CNN: Basic Concepts	Lab 4 (CNN)	W13	5/28 5/31	(Final project)	<Office hour>
W6	4/9 4/12	CNN: History	Lab 5 (Image Classification)	W14	6/4 6/7	(Final project)	<Office hour>
W7	4/16 4/19	App1: Object detection	Lab 6 (Object Detection)	W15	6/11 6/14	Final project presentation	(Final project report)
W8	4/23 4/26	App2: Pose Estimation	Lab 7 (Pose Estimation)	W16	6/18 6/21	(Tentative) Invited Talk	

Evaluation (Total 100 Points)



- Attendance (10 points)
 - Random attendance check: -1 point for each unattended lecture (>10 → Grade F)
 - **Failure to return the board in good condition → Grade D**
- Labs (40 points)
 - 10 Labs – Submit a short report before the next class (format will be provided)
- Final Project (50 points)
 - Project details will be announced at around Week 12
- Extra points for active participation (up to 5 points)
 - +1 to total points if you provide a good answer for another student's question
- Absolute Grading



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P 자동 저장 ● 끔 ⌂ ⌂ ⌂ iap_2024_Lec00_syll... • 이 PC에 저장됨 ▾ 검색

파일 홈 삽입 그리기 디자인 전환 애니메이션 슬라이드 쇼 녹음/녹화 검토 보기 도움말

● 녹음/녹화 Teams

레이아웃 12 가^ 가^ 가^

새 슬라이드 슬라이드 다시 사용 슬라이드 쇼 다시 시작(R)

클립보드 슬라이드

글꼴 단락

도형 정렬 빠른 스타일 도형 채우기 도형 윤곽선 도형 효과

찾기 바꾸기 선택 편집 음성 추가 기능

Jungwook Choi 쓰기

1 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

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6

7

8

9

Final Project Examples

- Jetson Community Projects

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Community Gallery

Have a Jetson project to share? Post it on our [forum](#) for a chance to be featured here too! Every month, we'll award one Jetson AGX Xavier Developer Kit to a project that's a cut above the rest for its application, inventiveness and creativity.

Furthermore, you can earn an AI Certification by submitting the Jetson project that you created. Learn more about [Jetson AI Certification Programs](#).

AI Hardware and Algorithm Lab

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Jungwook Choi

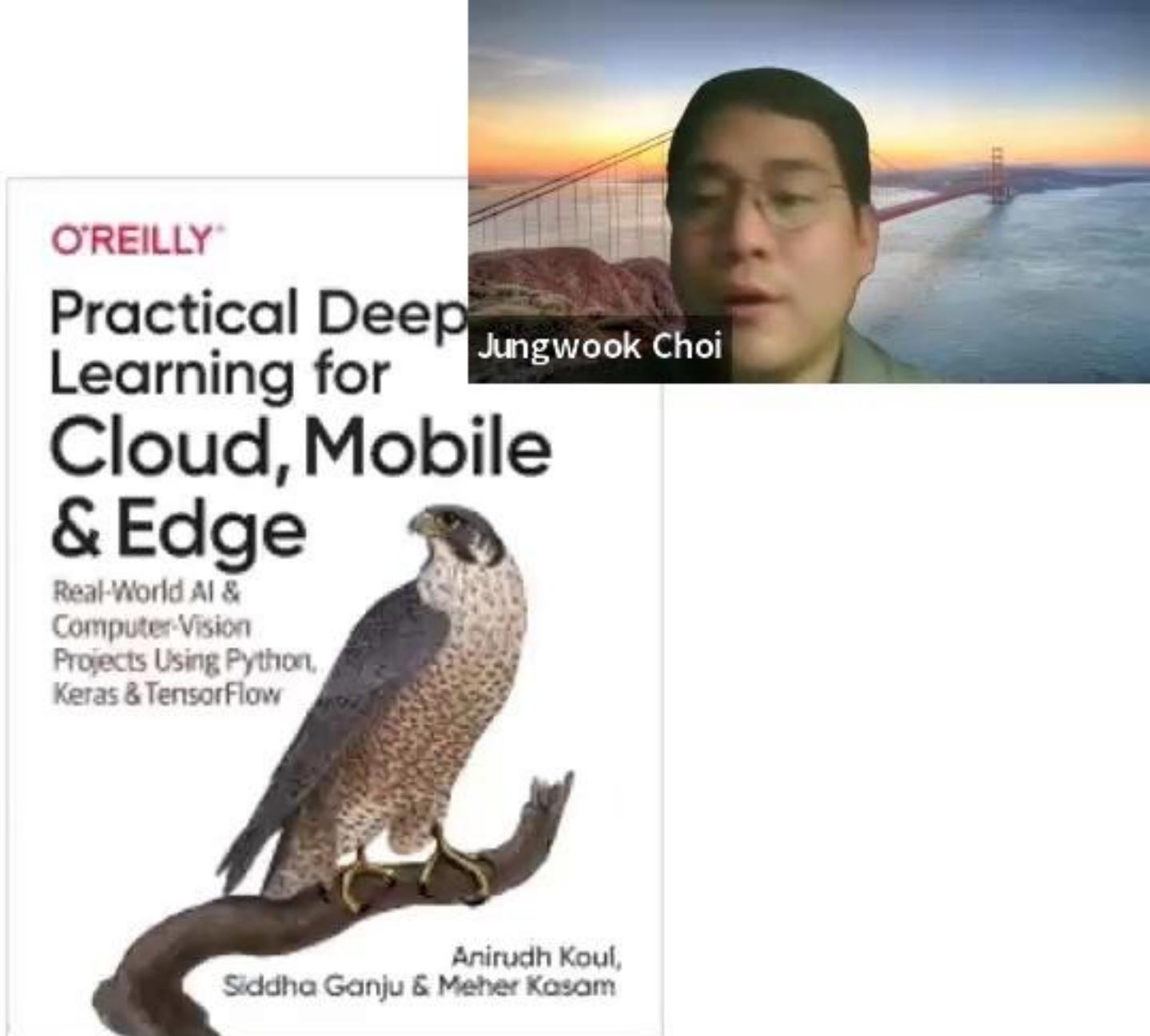
Intro to AI Platform

Syllabus

Jungwook Choi
[\(choij@hanyang.ac.kr\)](mailto:choij@hanyang.ac.kr)
Hanyang University
2024 Spring

Course Information

- No textbook. All study materials will be provided
 - Lecture notes (uploaded to LMS before each class starts)
 - Lab materials (uploaded to LMS)
 - Suggested reading for more info (not required)
 - Practical Deep Learning for Cloud, Mobile, and Edge
(Anirudh Koul, Siddha Ganju, Meher Kasam; O'Reilly)



- Teamwork for Labs and Projects
 - Work in a team of 2 members
 - Email TA for your team preference
 - Or we will make teams for you 😊
 - NVIDIA Jetson Nano board will be provided per team
 - Need to return the board at the end of semester!



[NVIDIA Jetson Nano board](#)

Final Project Goal



- **[Skill]** Use Jetson Nano to run “real” Deep Learning models
- **[Knowledge]** Apply knowledge you learn about deep learning (especially CNNs) to make your own application
- **[Novelty]** Invent an interesting AI application that can solve a real-world problem

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[NVIDIA Jetson Nano board](#)

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Jungwook Choi

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Final Project Examples



Jungwook Choi

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- MONITORING WITH JETSON NANO** by R LO: A monitoring interface showing a stick figure and a video feed.
- POSE ESTIMATION ON JETSON WITH OPENPIPPAF** by GALIDIT: A street scene with people and a "Happy Counter" value of 78.
- Hand Gesture Recognition**: A collage of images showing hand gestures and their corresponding neural network visualizations.
- Face Detection**: A video feed showing people with green bounding boxes around their faces.
- Object Detection**: A diagram illustrating the object detection process from a video frame to a bounding box.

At the bottom of the page, there is a cookie consent banner: "NVIDIA websites use cookies to deliver and improve the website experience. See our [cookie policy](#) for further details on how we use cookies and how to change your cookie settings." with "ACCEPT" and "REFUSE" buttons.

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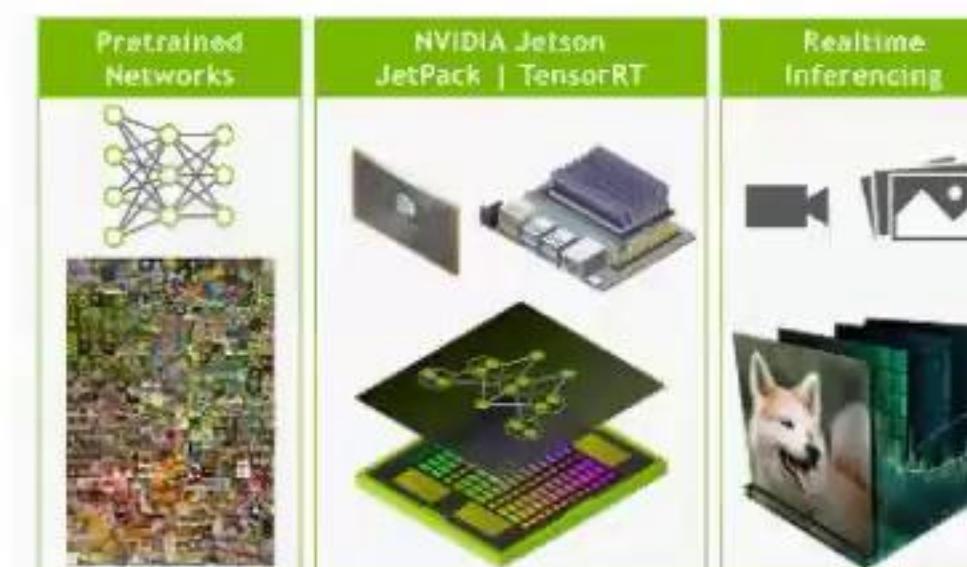
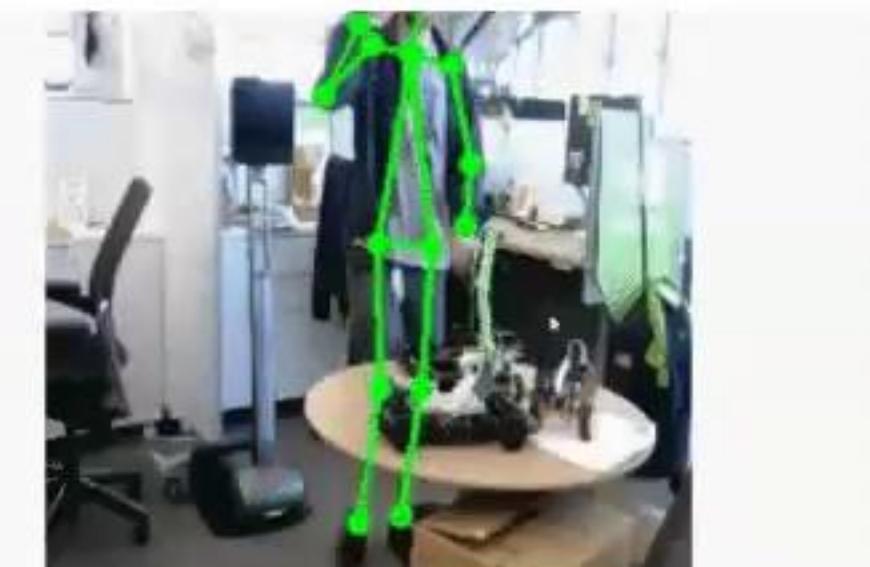
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[Jetbot](#)[Hello AI World](#)[JetRacer](#)[Real-time Human Pose Estimation](#)



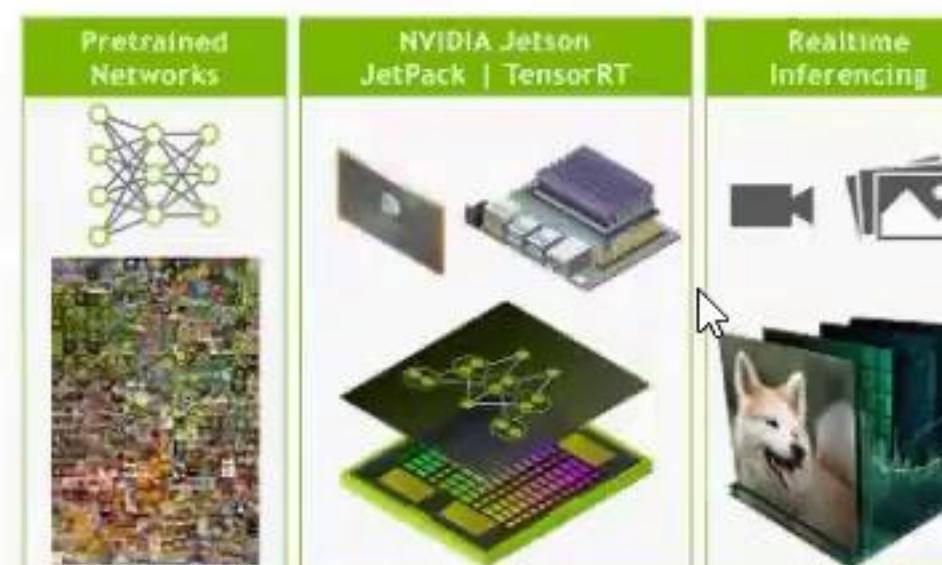
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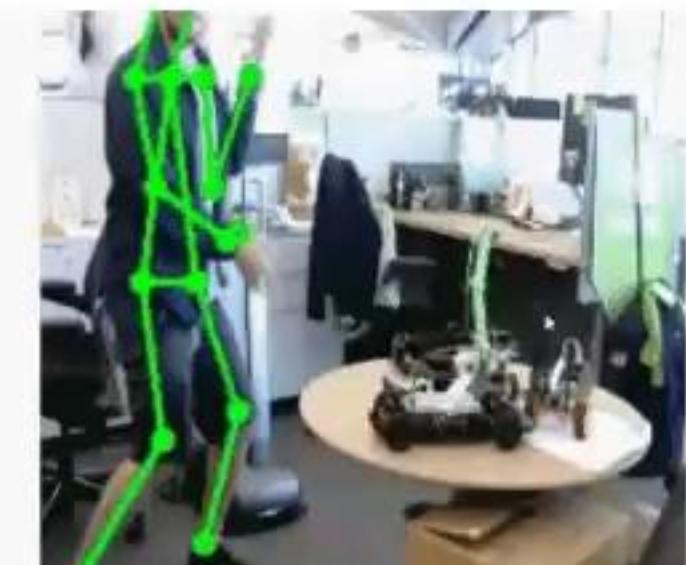
Jetbot



Hello AI World



JetRacer

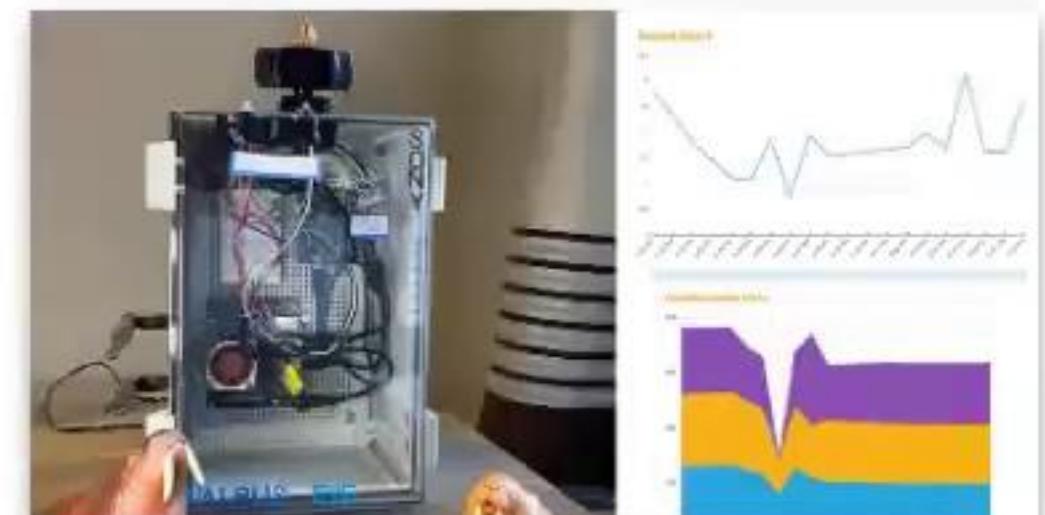


Real-time Human Pose Estimation

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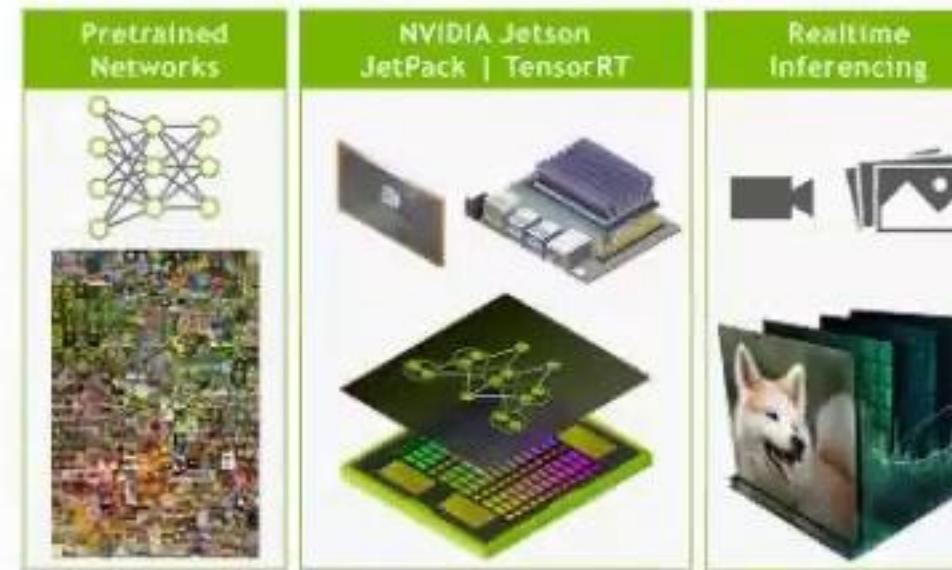
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Jetbot



Hello AI World



JetRacer



Real-time Human Pose Estimation

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Works with...

- Jetson AGX Orin
- Jetson AGX Xavier
- Jetson Nano



Project of the Month July 2022

SSL-Detector

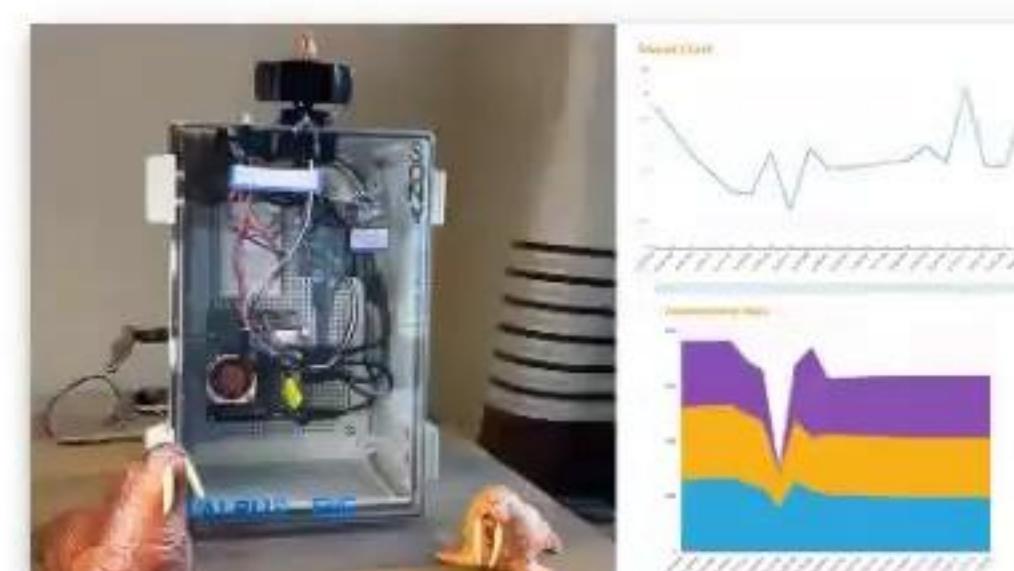
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https://developer.nvidia.com/embedded/community/jetson-projects/hello_ai_world



Nvidia HPC Autopilot

E Neto



WalrusEye

R Singh

Filters

Works with...

- Jetson AGX Orin
- Jetson AGX Xavier
- Jetson Nano
- Jetson Nano 2GB
- Jetson Orin NX
- Jetson TX2
- Jetson Xavier NX

NVIDIA Frameworks

- CUDA

Found 189 results



Project of the Month July 2022

SSL-Detector

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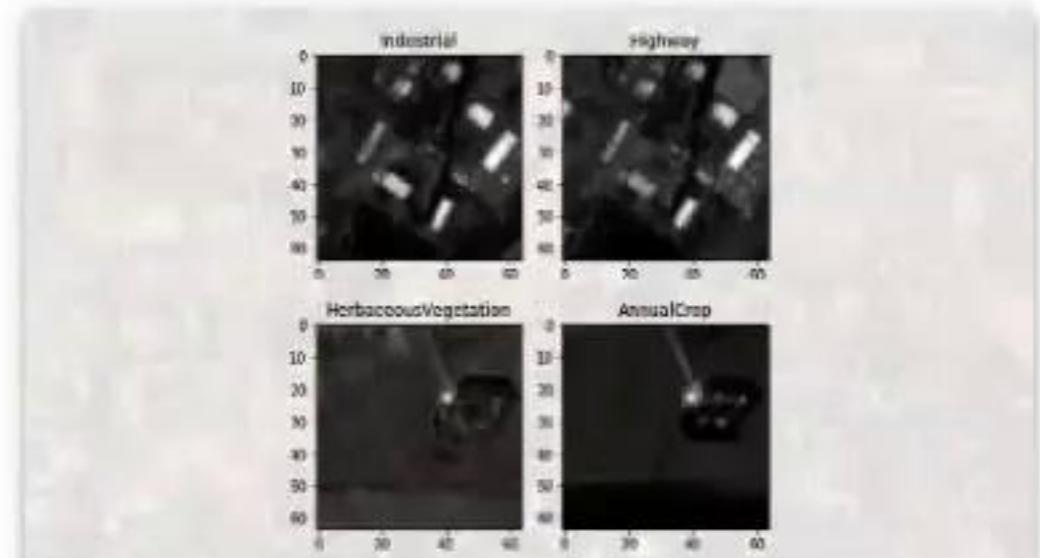


YOLO-ReT: Towards High Accuracy Real-time Object Detection on Edge



WalrusEye

R Singh



NYC Land Cover Pseudo-segmentation and Analysis

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WORKS WITH...

- Jetson AGX Orin
- Jetson AGX Xavier
- Jetson Nano
- Jetson Nano 2GB
- Jetson Orin NX
- Jetson TX2
- Jetson Xavier NX

NVIDIA Frameworks

- CUDA
- DeepStream SDK
- Isaac ROS
- NVIDIA TAO Toolkit
- NVIDIA TLT
- TensorFlow

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Qualitative Heatmap Study

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P Ganesh

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NVIDIA Frameworks

- CUDA
- DeepStream SDK
- Isaac ROS
- NVIDIA TAO Toolkit
- NVIDIA TLT
- TensorFlow
- TensorRT

Public Frameworks

- Caffe
- Darknet
- dlib
- Keras
- ncnn

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C Bendig Mundbjerg-Sunne



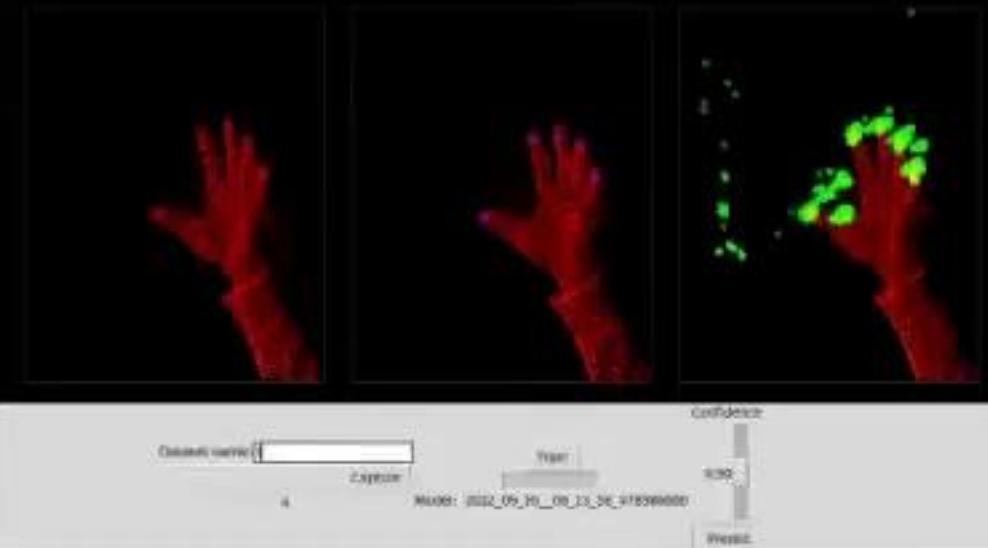
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P Ganesh



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N Kasmanoff



3D Recognizer
M Verstraete



Autonomous Off-Road Laz Boy Robot
D Niewinski



ROBOT ARM that Launches Fireworks! - Canada Day Special
D Niewinski



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tensorRT

Public Frameworks

- Caffe
- Darknet
- dlib
- Keras
- ncnn
- oneAPI
- ONNX
- OpenCV
- OpenPose
- PyTorch
- ROS
- TensorFlow

3D Recognizer
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Autonomous Off-Road La Z Boy Robot
D Niewinski

ROBOT ARM that Launches Fireworks! - Canada Day Special
D Niewinski

Autonomous Robot Bin
J Bruton, Xrobots

CameraBot: Auto Cameraman Robot Follows YOU
J Bruton, Xrobots

JetAuto ROS Robot
Hiwonder

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dlib
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CameraBot: Auto Cameraman Robot Follows YQ!
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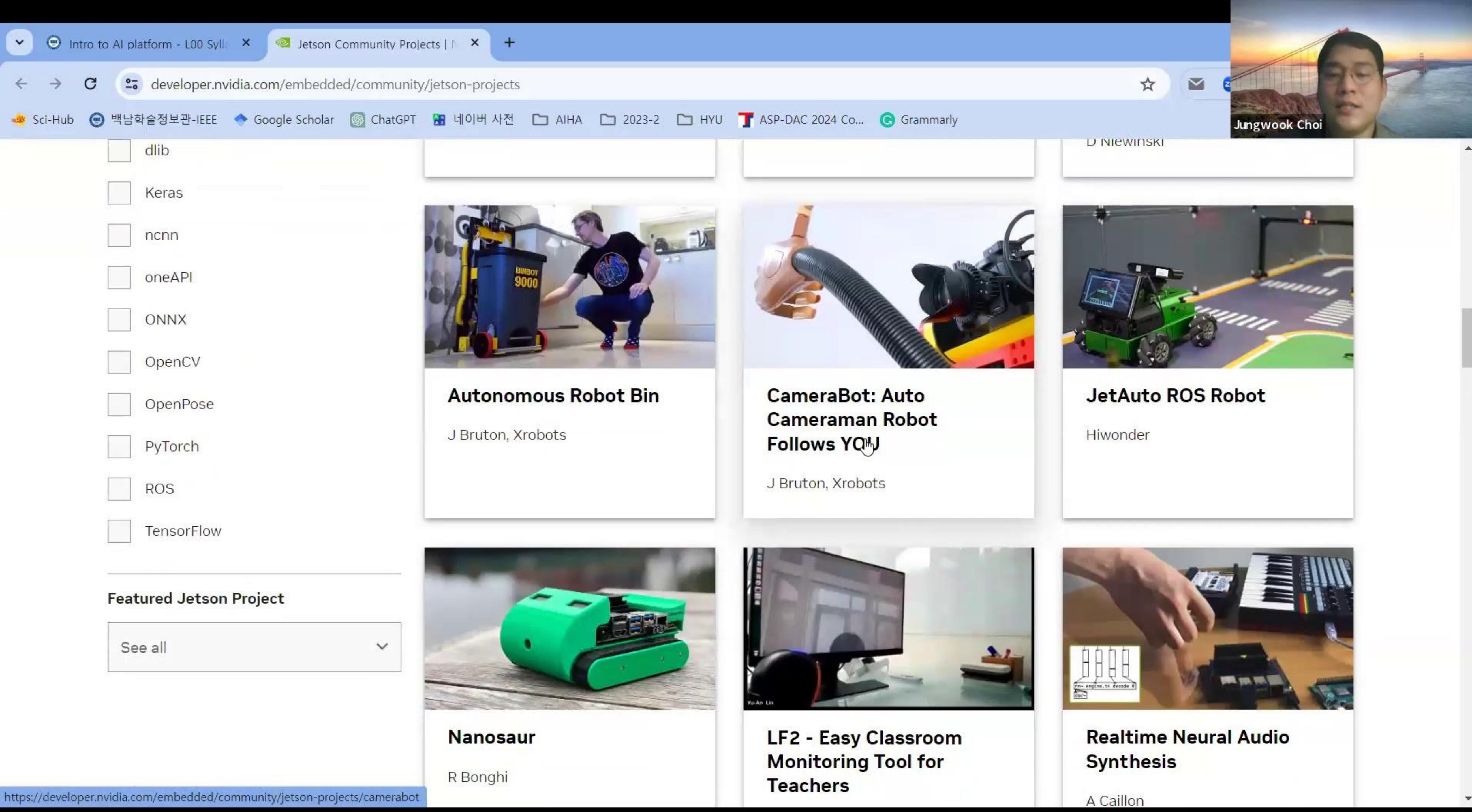
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See all

Nanosaur
R Bonghi

LF2 - Easy Classroom Monitoring Tool for Teachers

Realtime Neural Audio Synthesis
A Caillon



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OpenCV
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 ROS
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PyTorch

ROS

TensorFlow

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Shanten Calculator

Project of the Month February 2022

Table:

bus_number	Column A	Column B
bus_1	9:08:12	9:08:27
bus_2	9:19:33	9:21:01
bus_3	9:32:39	9:36:57
bus_4	9:45:17	9:48:27
bus_5	9:59:22	10:01:23
bus_6	10:12:53	10:13:47
bus_7	10:25:57	10:27:03
bus_8	10:39:28	10:38:33
bus_9	10:52:51	10:52:45
bus_10	11:04:45	11:08:51
bus_11	11:16:32	11:27:45
bus_12	11:30:29	11:42:32

Project of the Month May 2022

Shanten Calculator

Carrotman Robot Follows YOU

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Jetbot

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JetRacer

Real-time Human Pose Estimation

Filters

Works with...

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- Jetson Orin NX
- Jetson TX2

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Project of the Month July 2022

SSL-Detector

João G. Melo



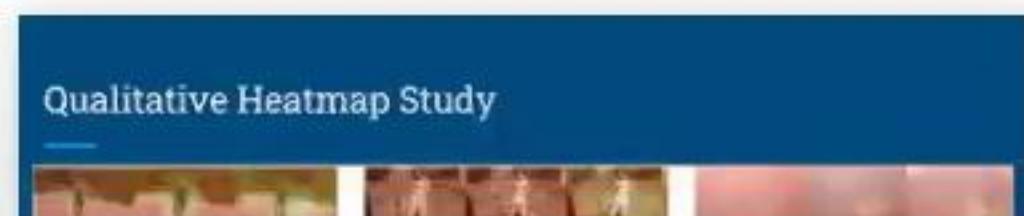
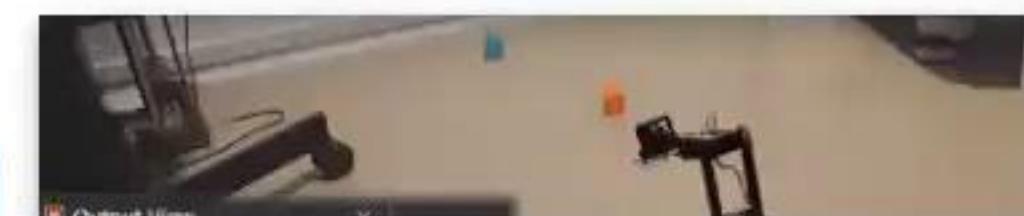
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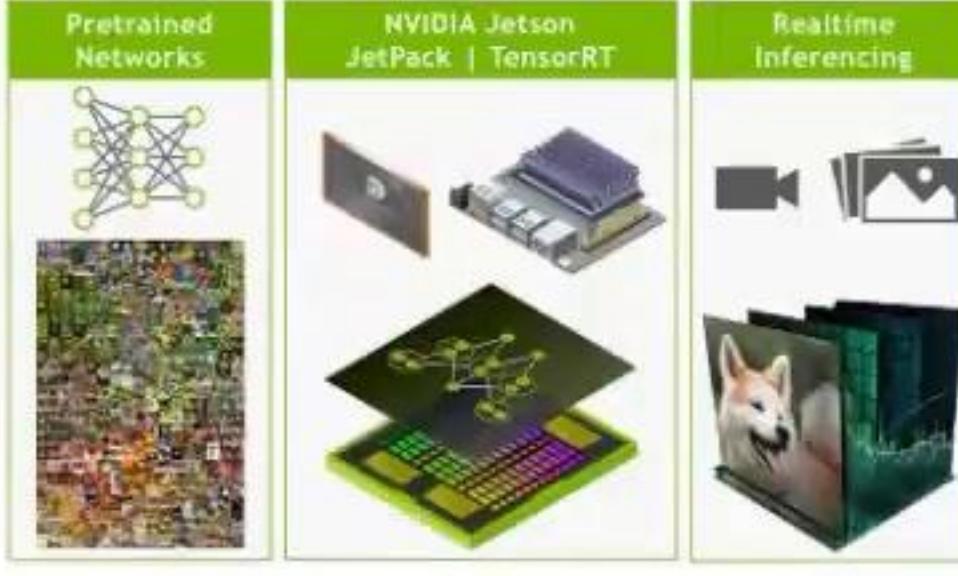
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Jetbot



Pretrained Networks

NVIDIA Jetson JetPack | TensorRT

Realtime Inferencing



JetRacer



Real-time Human Pose Estimation

Filters

Search here...

Works with...

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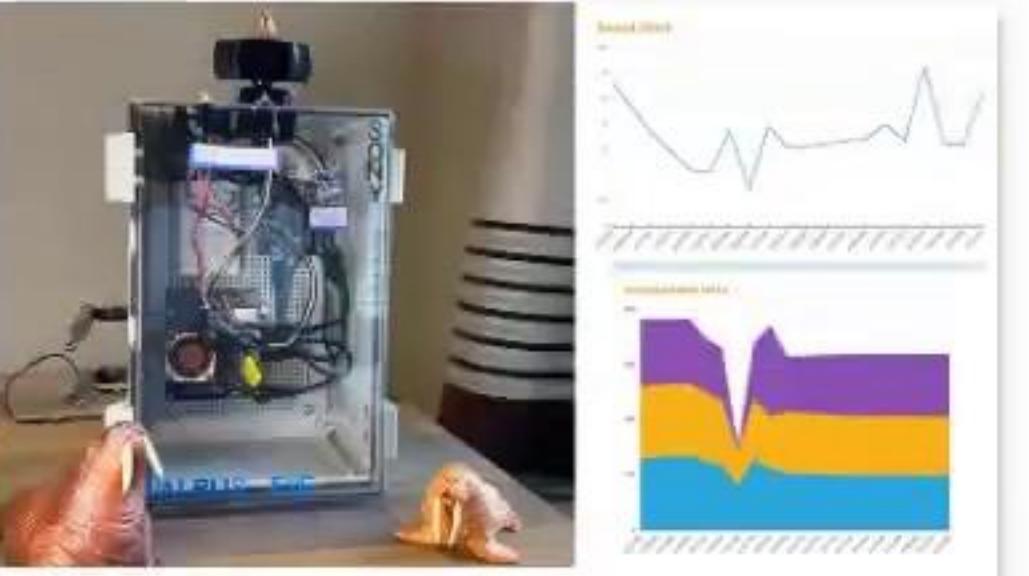
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Nvidia HPC Autopilot



WalrusEye

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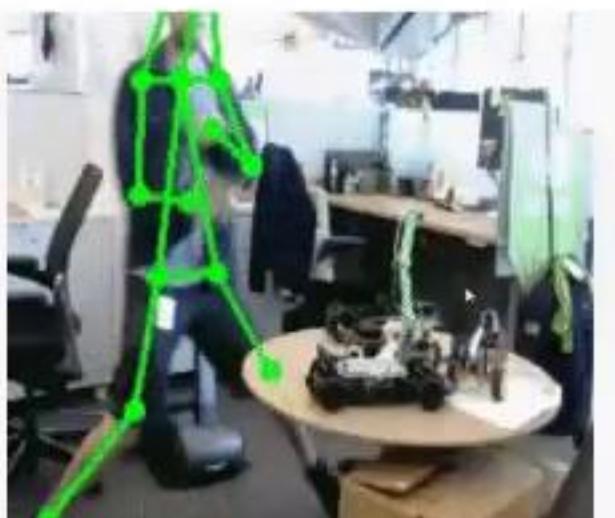


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Real-time Human Pose Estimation

This project features multi-instance pose estimation accelerated by [NVIDIA TensorRT](#). It is ideal for applications where low latency is necessary. It includes:

- Training scripts to train on any keypoint task data in MSCOCO format
- A collection of models that may be easily optimized with TensorRT using torch2trt



This project can be used easily for the task of human pose estimation, or extended for something new.

Authors

NVIDIA

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Works with...

Jetson Nano

Jetson AGX Xavier

Jetson TX2

Jetson Xavier NX

Jetson Nano 2GB

Jetson Orin NX

Jetson AGX Orin

Resources

[View project repository](#)