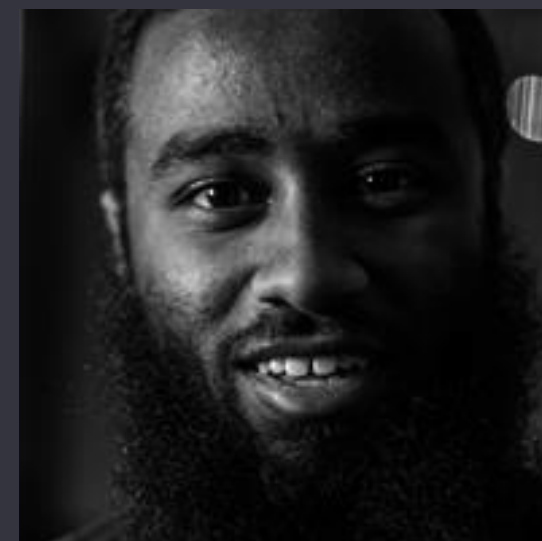


New AI tools for research work

Brief overview of how AI can help in your research projects.

Abderisak Adam,
Research coordinator Avidnote & Kahubi
PhD in Civ Engineering



Agenda

Brief overview of meeting agenda

- **Brief introduction to the topic**

.....

- **How AI tools can be utilized in the research process**

.....

- **AI research tools: practical examples**

.....

- **Important ethical considerations**

.....

- **Q&A**

About LLMs

Language models (LLM) can converse with humans in natural language.

They are trained on dataset of over 1 billion conversational utterances, allowing it to “understand” and respond to human conversations.

LLMs are able to generate both short and long-form text, and underdo complicated tasks.

ChatGPT

 Examples	 Capabilities	 Limitations
"Explain quantum computing in simple terms" →	Remembers what user said earlier in the conversation	May occasionally generate incorrect information
"Got any creative ideas for a 10 year old's birthday?" →	Allows user to provide follow-up corrections	May occasionally produce harmful instructions or biased content
"How do I make an HTTP request in Javascript?" →	Trained to decline inappropriate requests	Limited knowledge of world and events after 2021

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Reading

AI can be used to simplify the process of reading academic papers.

Functionalities include:

- simplify texts
- to translate text
- create summaries
- get opposite views
- provide academic critique
- and more

Analysis

AI can be used to interpret or analysis data, assuming the user has domain knowledge of the area.

Functionalities include:

- find correlations
- interpret data
- provide insights
- code interviews
- and more

Methods

AI can be used to explore research different methods.

Functionalities include:

- generate interview questions
- generate survey questions
- suggest relevant research method
- suggest keywords for literature search
- and more

Writing

AI for writing/rewriting and editing.

Functionalities include:

- write text
- rewrite text
- proofread text
- and more

AI tools for researchers

Let us take a look at two online AI tools for researchers

- [Kahubi.com](https://kahubi.com)

- [Avidnote.com](https://avidnote.com)



Avidnote

Note-taking for researchers enhanced by AI.

Enables researchers to write and organize their research.



Notes

Editor

AI



Save



AI Chat - ask anything

Default

AI Chat - ask anything

Methodology

- Suggest keywords for literature search
- Identify research gaps
- Outline for a research paper
- Suggest research methods
- Generate research questions
- Suggest questions for survey study
- Suggest questions for interview study

Writing

- Write anything
- Write a historic overview for a topic
- Write abstract
- Write an introduction
- Write literature review
- Write a method section
- Write a discussion section
- Write a results section
- Write conclusions
- Rewrite this text

Reading

assess the stability and safety of structures. The measurement of strain enables engineers to evaluate the amount of stress a material can withstand before it deforms,

Avidnote Interface



Tags ← Home Save

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A neural network is a network or circuit of neurons, or in a modern sense, an artificial neural network, composed of artificial neurons or nodes.[1] Thus a neural network is either a biological neural network, made up of biological neurons, or an artificial neural network, for solving artificial intelligence (AI) problems.

The connections of the biological neuron are modeled as weights. A positive weight reflects an excitatory connection, while negative values mean inhibitory connections. All inputs are modified by a weight and summed. This activity is referred to as a linear combination. Finally, an activation function controls the amplitude of the output. For example, an acceptable range of output is usually between 0 and 1, or it could be -1 and 1.

Here you|

Mobilenets: Efficient convolutional neural networks for mobile vision applications

Page 1 of 9 [Hand Icon] [Magnifying Glass Icon] [Zoom In Icon] [Zoom Out Icon]

[Eraser Icon] [Pencil Icon] [Image Icon] [Text Icon] [Link Icon] [Print Icon] [Search Icon]

arXiv:1704.04861v1 [cs.CV] 17 Apr 2017

MobileNets: Efficient Convolutional Neural Networks for Mobile Vision Applications

Andrew G. Howard Menglong Zhu Bo Chen Dmitry Kalenichenko
Weijun Wang Tobias Weyand Marco Andreetto Hartwig Adam

Google Inc.
{howarda,menglong,bochen,dkalenichenko,weijunw,weyand,anm,hadam}@google.com

Abstract

We present a class of efficient models called MobileNets for mobile and embedded vision applications. MobileNets are based on a streamlined architecture that uses depthwise separable convolutions to build light weight deep neural networks. We introduce two simple global hyper-parameters that efficiently trade off between latency and accuracy. These hyper-parameters allow the model builder to choose the right sized model for their application based on the constraints of the problem. We present extensive experiments on resource and accuracy tradeoffs and show strong performance compared to other popular models on ImageNet classification. We then demonstrate the effectiveness of MobileNets across a wide range of applications and use cases including object detection, finegrain classification, face attributes and large scale geo-localization.

1. Introduction

Convolutional neural networks have become ubiquitous in computer vision ever since AlexNet [19] popularized deep convolutional neural networks by winning the ImageNet Challenge: ILSVRC 2012 [24]. The general trend has been to make deeper and more complicated networks

models. Section 3 describes the MobileNet architecture and two hyper-parameters width multiplier and resolution multiplier to define smaller and more efficient MobileNets. Section 4 describes experiments on ImageNet as well a variety of different applications and use cases. Section 5 closes with a summary and conclusion.

2. Prior Work

There has been rising interest in building small and efficient neural networks in the recent literature, e.g. [16, 34, 12, 36, 22]. Many different approaches can be generally categorized into either compressing pretrained networks or training small networks directly. This paper proposes a class of network architectures that allows a model developer to specifically choose a small network that matches the resource restrictions (latency, size) for their application. MobileNets primarily focus on optimizing for latency but also yield small networks. Many papers on small networks focus only on size but do not consider speed.

MobileNets are built primarily from depthwise separable convolutions initially introduced in [26] and subsequently used in Inception models [13] to reduce the computation in the first few layers. Flattened networks [16] build a network out of fully factorized convolutions and showed the potential of extremely factorized networks. Independent of this

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A Einstein 2005

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Notes

Search notes

view (RBV) is also described. The reason for this critique is that RBV constitutes the foundation that the theory of dynamic capabilities is based on, and the critique of RBV is hence relevant an...

This paper which is based on a literature review investigates the occurrence of and the explanations for cost overruns and time delays in major construction projects from the public...

A neural network is a network or circuit of neurons, or in a modern sense, an artificial neural network, composed of artificial neurons or nodes.[1] Thus a neural network is either a...

This is an example of a research note. The Internet of things (IoT) describes the network of physical objects—a.k.a. "things"—that are embedded with sensors, software, and other...

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TQM is an effort that involves every organization in the industry in the effort to improve performance. It permeates every aspect of a company and makes quality a strategic objectiv...

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Kahubi

Dedicated AI tool for researchers.

Includes previously mentioned functionalities that relate to:

- writing
- reading
- analyzing

+ automatic transcription

+ more inputs (10 000 words)

+ ai code

+ ai chat

The screenshot displays the Kahubi AI tool interface. At the top left is the Kahubi logo (a stylized 'K' in a circle). To its right are a hamburger menu icon and a search icon. Below the logo, a status bar shows '4,746 words left' and an 'UPGRADE' button. The main navigation menu on the left includes 'AI PANEL', 'Dashboard', 'Templates' (highlighted in blue), 'Documents', 'AI Speech to Text', 'AI Code', and 'AI Chat'. The main content area features a grid of AI-powered tools, each with a title, a brief description, and a star icon:

- Suggest research method**: AI suggest research method based on your study.
- Paper outline**: AI generates an outline for a paper.
- Plan my study**: AI generates a time plan based on your input.
- Further research**: AI generates suggestions for future research direction.
- Write twitter thread**: AI generates an engaging twitter thread based on your study.
- Suggest a title**: AI suggests a title for your study.

Additional text in the interface includes: 'AI suggests keywords for your literature search.', 'research gaps based on a text.', and 'AI suggest research method based on your study.'

Important considerations



How to look at AI tools

A tool, not a replacement

AI written text cannot be submitted as that of your own. Like all text, you discard, edit, modify and provide references.

Not as Word but as Google

Consider AI as Google, a starting point for research but not like Word.

Don't trust, and verify.

Automate the mundane, explore the complex

AI can help you automate mundane tasks and explore more complicated issues.

Important considerations



Data related information

Data is private

Your data is private and belongs to you. You can choose to delete all of your data at any time.

Data stored in GDPR certified servers

We store all the data in EU data centers in compliance with GDPR regulations. We are based in the EU (Sweden).

Data is retrievable

You can retrieve all of your data at any time.

How to get started

Free plans



Free plans are **always** free

Register for free at: **avidnote.com**

Register for free at: **kahubi.com**

If you **need more** AI searches,
you can upgrade

Visit the websites for premium plans. We
offer discounts for groups and for students

Trying out Premium plans



Premium gives you:

- More AI searches
- More storage
- More collaboration
- More functionalities

Introduce Kahubi & Avidnote to your department

- 1) We give free 30-day premium to your entire department.
- 2) Contact us for more info.

Questions?

Feel free to ask questions in the chat or reach out through the website.

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Contact

adam@avidnote.com

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