

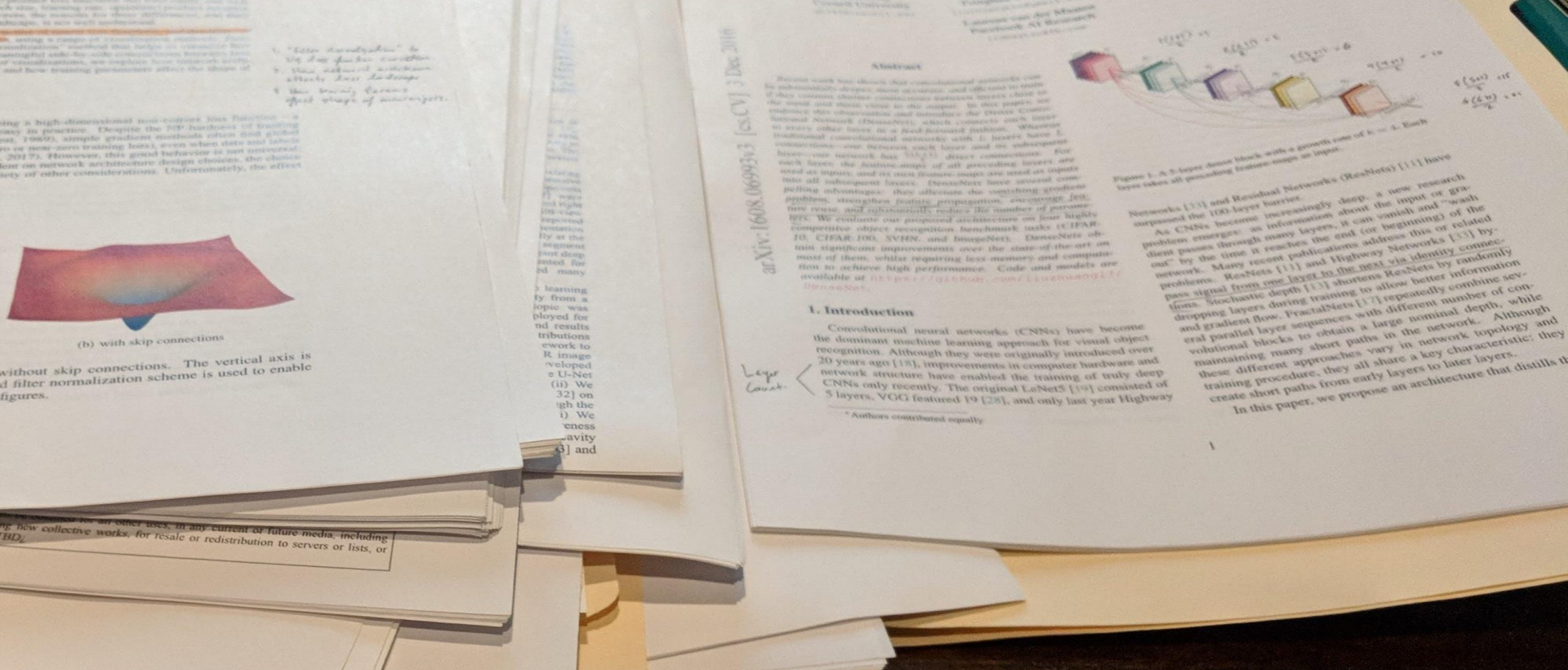


Struktura naučnog rada

Metodologija naučnog rada

Mijat BOŽOVIĆ





- 1. "Data augmentation" is the most effective way to improve the generalization ability of the model.
- 2. The most effective way to improve the generalization ability of the model is to use data augmentation.
- 3. The most effective way to improve the generalization ability of the model is to use data augmentation.

Using a high-dimensional non-linear function is a key in learning. Despite the 100-layered of training net, simple gradient methods often find global optima. However, simple gradient methods often find global optima or near-optimal solutions, even when data are noisy and non-convex. This good behavior is not accidental. However, this good behavior is not accidental. However, this good behavior is not accidental.



without skip connections. The vertical axis is used for filter normalization scheme is used to enable figures.

learning by from a topic was played for and results tributions ework to R image volved a U-Net (ii) We 32] on gh the i) We eness avity 3] and

arXiv:1608.06993v1 [cs.CV] 3 Dec 2016

Abstract

Recent work has shown that convolutional networks can be substantially deeper, more accurate, and efficient to train if they contain identity shortcuts between layers. In this paper, we employ this observation and introduce the Deep Residual Network (ResNet), which connects each layer to every other layer in a residual fashion. Whereas traditional convolutional networks with L layers have $L-1$ convolutional steps between each layer and its subsequent layer, our network has only $L/2$ direct connections. For each layer, the feature maps of all preceding layers are used as inputs, and its own feature maps are used as inputs into all subsequent layers. These layers have several compelling advantages: they alleviate the vanishing gradient problem, strengthen feature propagation, encourage feature reuse, and significantly reduce the number of parameters. We evaluate our proposed architecture on four highly competitive object recognition benchmark tasks (CIFAR-10, CIFAR-100, SVHN, and ImageNet). DenseNets obtain significant improvements over the state-of-the-art in most of them, while requiring less memory and computation to achieve high performance. Code and models are available at <https://github.com/facebook/f80>.

1. Introduction

Convolutional neural networks (CNNs) have become the dominant machine learning approach for visual object recognition. Although they were originally introduced over 20 years ago [18], improvements in computer hardware and network structure have enabled the training of truly deep CNNs only recently. The original LeNet5 [19] consisted of 5 layers, VGG featured 19 [28], and only last year Highway

* Authors contributed equally.

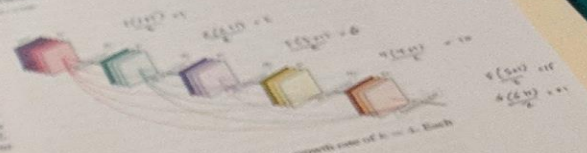


Figure 1. A 5-layer dense block with a growth rate of $k = 3$. Each layer takes all preceding feature-maps as input.

Networks [33] and Residual Networks (ResNets) [11] have surpassed the 100-layer barrier. As CNNs become increasingly deep, a new research paradigm emerges: as information is lost and “washed out” by the time it reaches the end (or beginning) of the network. Many recent publications address this or related problems. ResNets [11] and Highway Networks [33] bypass signal from one layer to the next via identity connections. Stochastic depth [17] shortens ResNets by randomly dropping layers during training to allow better information and gradient flow. FractalNets [7] repeatedly combine sequential parallel layer sequences with different number of convolutional blocks to obtain a large nominal depth, while maintaining many short paths in the network. Although these different approaches vary in network topology and training procedure, they all share a key characteristic: they create short paths from early layers to later layers. In this paper, we propose an architecture that distills the

Šta je naučna publikacija?



Više podjela publikacija prema:

rezultatima istraživanja:

naučne i stručne

načinu iskazivanja:

usmene i pisane

obliku:

knjige, članci
i predavanja

stilu pisanja:

naučne, publicističke,
beletrističke i poslovne

načinu verifikacije:

odbranjene pred
komisijom ili recenzirane

vremenu objavljivanja:

primarne, sekundarne
i tercijarne



Djelovi publikacije

#1

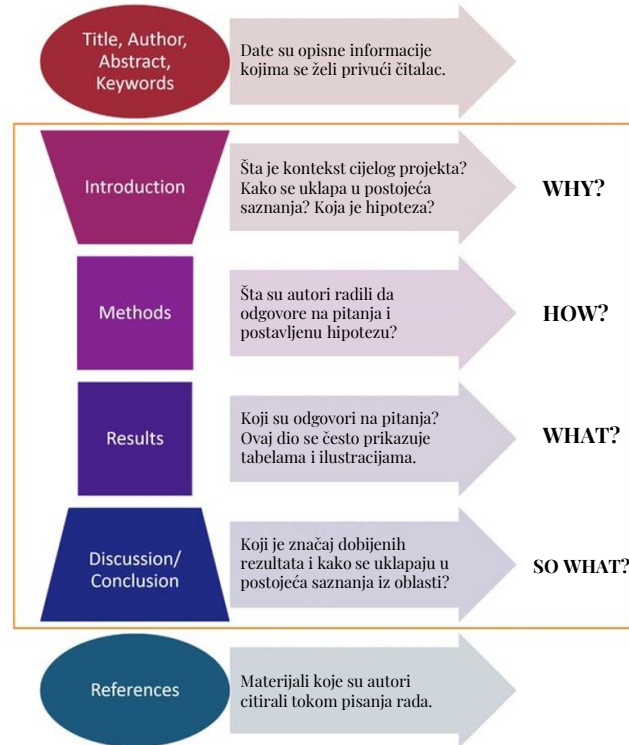
prednji dio

#2

osnovni tekst

#3

zadnji dio



01

Prednji dio

naslov rada, autori rada,
sažetak sa ključnim riječima





Naslov rada

Čemu služi naslov?

Kakav treba da bude?

Koje pojmove treba izbjegavati?



Najuočljiviji i najčitaniji dio rada



- Kao reprezent rada, naslov je tačan, jasan, kratak i potpun.
- Najčešće se piše masnim slovima a nekad i velikim (kao u slučaju doktorskih disertacija i master teza).
- Može biti informativan i indikativan.



Autor i autorstvo

1. Authorship

Jedini kriterijum za sticanje autorskih prava je rad i rezultati rada.

2. Author list

Pojam koautora i pravilo u navođenju imena autora.

3. Affiliation

Navođenje adrese je različito i zavisi od specifičnih pravila časopisa.

4. Corresponding author

Jedan autor je odgovoran za korespodenciju tj. komunikaciju sa drugim istraživačima.



Primjer:



Article

Positive Effects of Organic Amendments on Soil Microbes and Their Functionality in Agro-Ecosystems

Weijia Liu ^{1,†}, Zepeng Yang ^{2,†}, Qinxin Ye ^{1,†}, Zhaohui Peng ¹, Shunxi Zhu ¹, Honglin Chen ², Dinghui Liu ², Yiding Li ³, Liangji Deng ³, Xiangyang Shu ^{1,2,4,*} and Han Huang ⁵

¹ Institute of Agricultural Bioenvironment and Energy, Chengdu Academy of Agriculture and Forestry Sciences, Chengdu 611130, China; Liuweijia27@163.com (W.L.); yeqinxin123@163.com (Q.Y.)

² Soil and Fertilizer Research Institute, Sichuan Academy of Agricultural Sciences, Chengdu 610066, China; zepengyang@126.com (Z.Y.); chenhl0107@163.com (H.C.); dinghuiliu@163.com (D.L.)

³ College of Resources, Sichuan Agricultural University, Chengdu 611130, China; encili@foxmail.com (Y.L.); auh6@sicau.edu.cn (L.D.)

⁴ Key Lab of Land Resources Evaluation and Monitoring in Southwest, Ministry of Education, Sichuan Normal University, Chengdu 610068, China

⁵ College of Economics and Management, Xinjiang Agricultural University, Urumqi 830052, China; 18328717493@163.com

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† These authors contributed equally to this work.



A B S T R A C T

The model of random population of continuous presence (=persistent) discrete-time stochastic process was tested for 6 years on Mount Carmel, Israel. The model predicted the population homogeneity. This criterion term behavior of any species match the model. Thus a test study. Determined from field on longevity of the survival level adaptation of given turnover may be considered environmental conditions.

Sažetak rada

Šta je apstrakt?

Šta sadrži?

Kako se piše?



Kratak opis rada



- Ključne informacije o objektu istraživanja, tehnikama rada i dobijenim rezultatima.
- Dužine 200-500 riječi ima za cilj da privuče pažnju i zainteresuje za čitanje cijelog rada.
- Upotreba u sekundarnim publikacijama i formiranju baza podataka i pretraživanju literature.





Ključne riječi

sadržinski iskazuju suštinu
istraživanja i rezultata
prezentovanih u naučnom radu



Primjer:

Abstract: Soil microbial characteristics are considered to be an index for soil quality evaluation. It is generally believed that organic amendments replacing chemical fertilizers have positive effects on changing microbial activity and community structure. However, their effects on different agro-ecosystems on a global scale and their differences in different environmental conditions and experimental durations are unclear. This study performed a meta-analysis based on 94 studies with 204 observations to evaluate the overall effects and their differences in different experimental conditions and duration. The results indicated that compared to chemical fertilizer, organic amendments significantly increased total microbial biomass, bacterial biomass, fungal biomass, Gram-positive bacterial biomass and Gram-negative bacterial biomass, and had no effect on the ratio of fungi to bacteria and ratio of Gram-positive bacteria to Gram-negative bacteria. Meanwhile, land use type, mean annual precipitation and soil initial pH are essential factors affecting microbial activity response. Organic-amendment-induced shifts in microbial biomass can be predominantly explained by soil C and nutrient availability changes. Additionally, we observed positive relationships between microbial functionality and microbial biomass, suggesting that organic-amendment-induced changes in microbial activities improved soil microbial functionality.

Keywords: organic amendments; microbes; soil fertility; crop yield; agro-ecosystem; meta-analysis



Ostali konstituenti preliminarnog dijela rada

- Prazna strana
- Posveta
- Epigraf
- Sadržaj
- Lista ilustracija



- Lista tabela
- Predgovor
- Zahvalnica
- Lista skraćenica
- Rječnik



02

Osnovni tekst

uvod, pregled literature, materijal i metode, rezultati, diskusija, zaključci



1

Uvod

Introduction



Kako se piše?

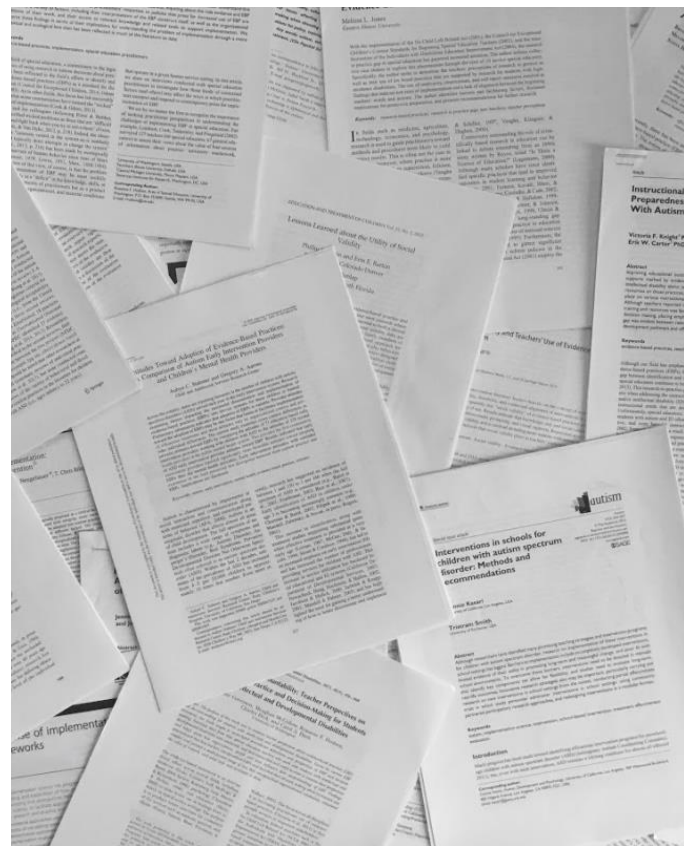


- U uvodu se istače značaj istraživanja za teoriju i praksu i korisnost dobijenih rezultata.
- Cilj naučnog rada se nagovještava na kraju uvodnog dijela – kratko, precizno i jasno formulisano.
- Piše se koncizno i po pravilu u sadašnjem vremenu, osim citiranih rezultata već izvršenih istraživanja.



2 Pregled literature

Literature review



Poglavlje sa specifičnim zahtjevima i ulogom



- Iznosi se pregled istraživanja odabranog problema, proučene grupe organizama ili istraživanog područja.
- Ne samo podaci kojima se potkrepljuje postavljena hipoteza već se suočavaju i drugačiji rezultati.
- Čitaocu se ukazuje opravdanost postavljenih ciljeva, upotrebe određene metode i obrade rezultata.



3 Materijal i metode

Material and methods



Struktura poglavlja



- Informacije o analiziranom materijalu: nazivi vrsta i populacija, lokalitet, broj analiziranih jedinki itd.
- Navode se metode sakupljanja, obrade i analize materijala.
- Iznose se metode analize sakupljenih podataka i metode korišćene u konstruisanju grafičkih prikaza.



4

Rezultati

Results



Šta sadrži?



- Precizno, nedvosmisleno i jasno se izlažu rezultati rada, bez komentara i pozivanja na literaturne podatke.
- Prikazuju se kvantitativne odlike istraživanih pojava, njihova raznovrsnost i varijabilnost, relacije i tendencije.
- Tabele i grafikoni se veoma često koriste u ovom dijelu rada.



5 Diskusija

Discussion



Najteži dio u pisanju naučnog rada



- Tumače se rezultati rada i objašnjavaju uočene pravilnosti, zakonitosti i relacije.
- Isticanje i pojašnjavanje odgovarajućih činjenica kroz indukciju, dedukciju i generalizaciju.
- Ukazivanje na nova pitanja, probleme i mogućnosti njihovog rješavanja.



6 Zaključci

Conclusions



Kako zaključujemo?



- Poglavlje se formuliše isticanjem suštine istraživanja na jasan i koncizan način.
- Treba pisati u obliku kratkih rečenica i povezano sa ciljevima rada, odnosno kao odgovor na ciljeve rada.
- Piše se u sadašnjem vremenu i ne iznose se lična mišljenja ili stavovi.



03

Bibliografski dio

literatura, zahvalnica, prilozi, indeks





Literatura

References



Zašto treba citirati literaturu?

1. da bi se prikazale zasluge autora drugih radova (bilo da se autor sa njima slaže ili ne);
2. da bi se čitaocima pokazao materijal na kojem je bazirana analiza, diskusija i zaključci;
3. da bi se pokazalo čitaocima kako mogu da dođu do materijala koji je korišćen kako bi mogli da ga ispituju i sami (njihovo interesovanje može biti u smislu potvrde autorovog rada, njegovog opoziva ili prosto daljeg istraživanja teme).

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indirektno preuzimanje odnosno parafraziranje

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upućivanje na određeni literaturni izvor

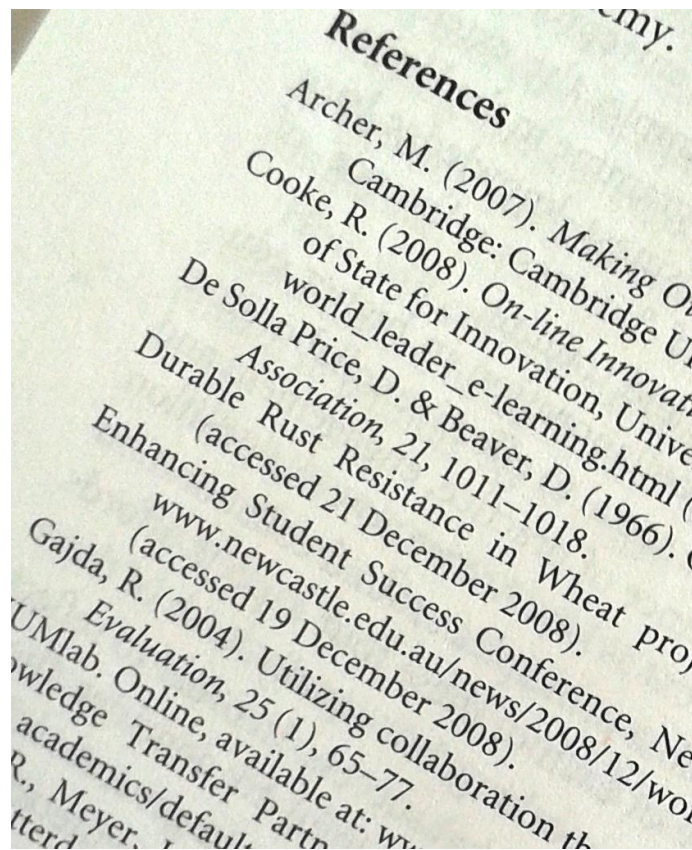


Šta je citat?



Bibliografska referenca

cjelokupna informacija o korišćenom izvoru podataka



2 glavna stila citiranja

Vankuverski

autor-broj

Harvardski

autor-datum

“ ”



Vancouver In-text Citation

navođenje

arapskim brojem pri prvom pojavljivanju

oznake

(1) ili [1, 4] ili (2, 7-9)
¹ ili (1) ili [1-3]

stranice

(2, str. 3) ili [1, str. 4-8]
(9, p. 75)

Reference list

Kako?

hronološki prema redosljedu pojavljivanja

Šta?

prezime (zarez) i inicijal imena a onda zarez ili tačka

Koliko?

svi autori (ako ih je do 6), prvih 6 i "et al." (više od 6)



Primjer:

"Collins *et al.* (1) argue that this technique is highly effective. Another study (2) conducted into the technique has raised doubts... Collins *et al.*'s conclusion that the technique is ready for 'large-scale application' (1, p. 15) in medical practice should... Several studies (8, 12) indicate a similar effect. There is a large body of research (1, 4–7) exploring this phenomenon."

References:

1. Collins M, Knutti J, Arblaster J. Long-term climate change: Projections, commitments and irreversibility. Cambridge University Press; 2013, pp. 1029-1136.
2. Wilkinson IB, Raine T, Wiles K, Goodhart A, Hall C, O'Neill H. Oxford handbook of clinical medicine. 10th ed. Oxford: Oxford University Press; 2017.
3. Bute M. *A backstage sociologist: Autoethnography and a populist vision*. Am Soc. 2016; 47(4): 499–515.



Harvard In-text Citation

navođenje

prezime autora i
godina izdanja

oznake

(Smith, 2007) ili
(Pešić *et al.*, 2010) ili
(Smith & Mauri, 2001)

stranice

(Ragno, 2001, pp. 33-38) ili
(Garzoli *et al.*, 2017: 33) ili
(*Karaman, 1999, str. 25*)

Reference list

Kako?

po alfabetskom
redosljedu prezimena

Šta?

prezime (zarez) i inicijal
imena a onda zarez
ili tačka

Koliko?

svi autori (ako ih je do 6),
prvih 6 i "et al." (više od 6)



Primjer:

"Several in-depth studies have investigated this phenomenon during the last decade (Singh *et al.*, 2011; Davidson, 2015; Harding, 2018). The results of the first study (Woodhouse, 2018a) were inconclusive, but a follow up study (Woodhouse, 2018b) achieved a clearer outcome. Woolf introduces the essay's topic as 'women and fiction' (2000, p. 5), going on to discuss the various..."

References:

Greenblatt, S. (2010) 'The traces of Shakespeare's life', in De Grazia, M. and Wells, S. (eds.) *The new Cambridge companion to Shakespeare*. Cambridge: Cambridge University Press, pp. 1-14.

Singh, S., Kushwaha, B. P., Nag, S. K., Mishra, A. K. (2011) *In vitro* methane emission from Indian dry roughages in relation to chemical composition. *Current Science*, 101 (1): 57-65.

Thagard, P. (2017) *Swing time*. London: Penguin.



Osnovni podaci za identifikaciju reference

01

prezime autora

uvijek puno prezime koje se može odvajati zarezom od imena koje slijedi

02

ime autora

inicijali ili puno; ako je više autora odvajaju se zarezom ili tačka-zarezom

03

naslov publikacije

može da se piše kurzivom a nekad sadrži i podnaslov; završava se tačkom ili zarezom

04

godina izdanja

najčešće prije naslova ili iza izdavača; može biti kurzivom, masnim slovima i u zagradi

05

naziv izdavača

slijedi naslov i često se piše kurzivom

06

mjesto izdanja

najčešće kod citiranja knjiga, saopštenja sa kongresa i teza



Česte skraćenice radi sažimanja reference

	ed. (eds.)	— urednik (urednici)
edicija —	edn.	
	no.	— broj
volumen —	vol.	
	p. (pp.)	— strana (raspon strana)
bez datuma —	n.d.	



Citiranje knjiga

Kompletno citiranje sadrži:
ime autora, naslov i (ako postoji)
podnaslov, ime urednika, broj
edicije, naziv serije ili volumen i
broj date serije, informacije o
publikaciji i broj strane.



Primjer:

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(godina izdavanja)

Naslov knjige,

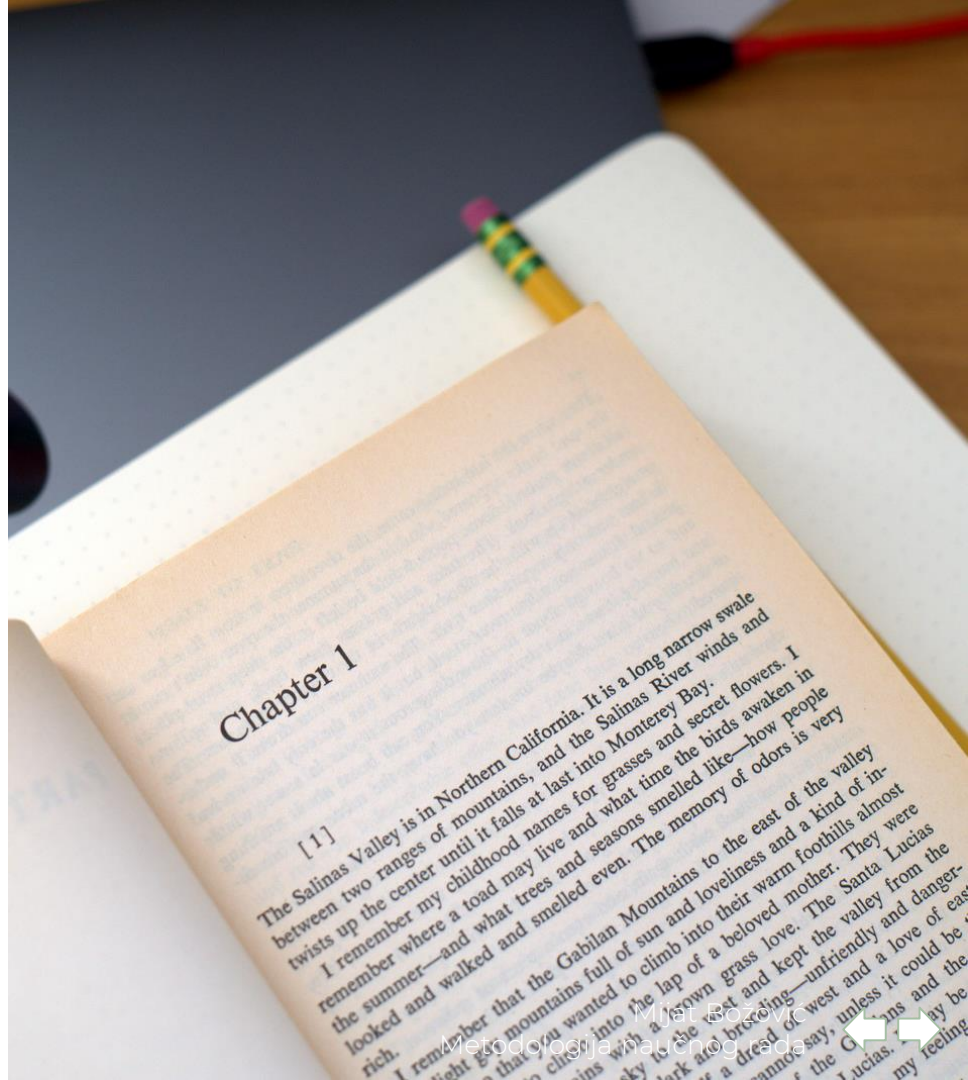
Thagard, P., Murphy, J. (2017) *Wind energy and its place in revitalizing economies*, London: Penguin, 389 pp.

Mjesto izdavanja:

Izdavač.

Citiranje poglavlja u knjizi ili monografiji

Autori pojedinih poglavlja neperiodičnih publikacija su renomirani stručnjaci date oblasti istraživanja pa je cilj citiranje konkretnog poglavlja.



Chapter 1

[1]

The Salinas Valley is in Northern California. It is a long narrow swale between two ranges of mountains, and the Salinas River winds and twists up the center until it falls at last into Monterey Bay. I remember where a toad may live and what time the birds awaken in the summer—and what trees and seasons smelled like—how people looked and walked and smelled even. The memory of odors is very rich.

I remember that the Gabilan Mountains to the east of the valley brought me mountains full of sun and loveliness and a kind of darkness that you wanted to climb into their warm foothills almost to cling into the lap of a beloved mother. They were mountains with a brown grass love. The Santa Lucias mark a dread of west and the valley from the east cannot say, unless it could be said of the Gabilans and the Santa Lucias, my feeling

Primjer:

Prezime autora,

Inicijal imena.

(godina izdavanja)

Naslov poglavlja,

Smith, A. (2004) Innovative solutions to saving energy, in
Healey, M. (ed.) *Alternative energy*, London: Penguin, pp. 65-89.

Prezime urednika, inicijal imena.

Naslov knjige,

raspon strana.

Citiranje master teze ili doktorske disertacije

Teza i disertacija sadrži sastavne elemente: ime autora, datum štampanja, naslov teze/disertacije, univerzitet, grad, strana/e.



Primjer:

Prezime autora,

master teza/doktorska disertacija,

(godina odbrane)

Inicijal imena.

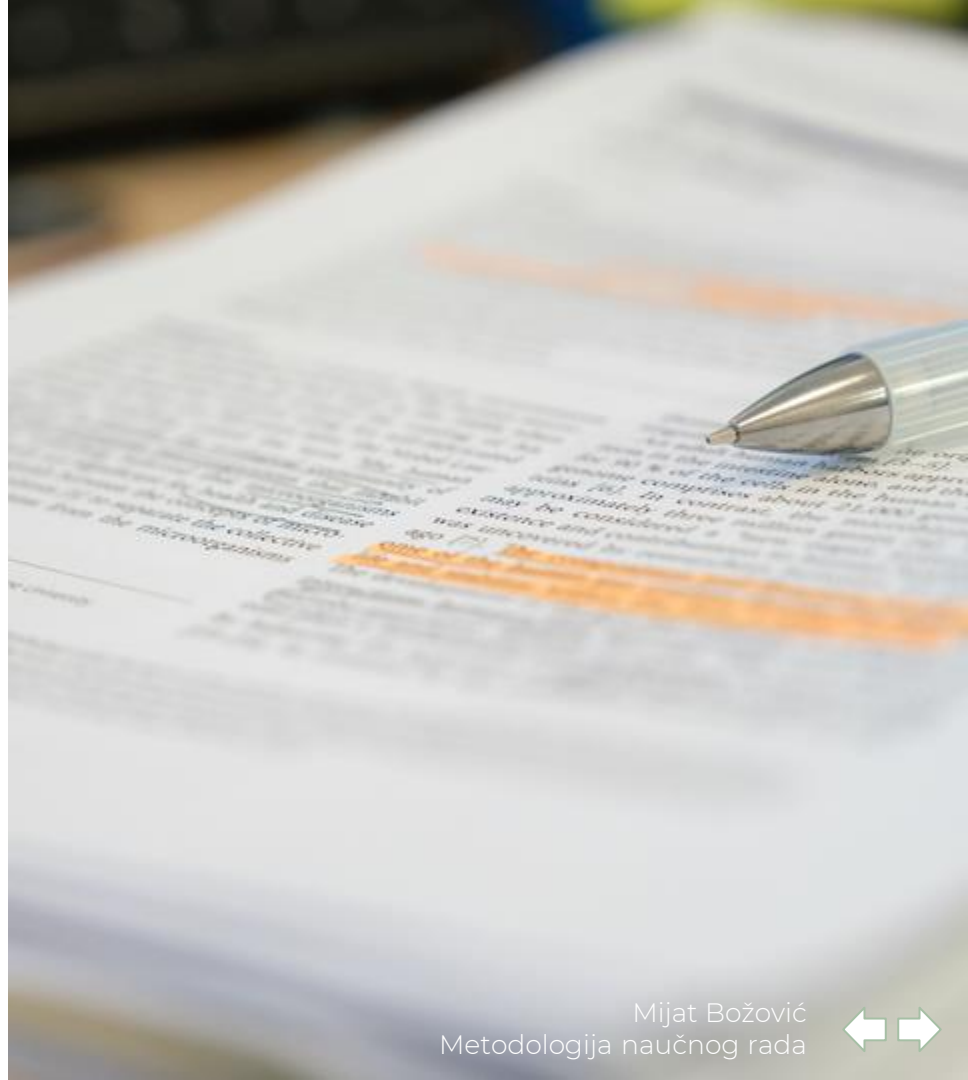
Naslov teze/disertacije,

Byrne, C. (1998) *Renewable energy: challenges*, doctoral
dissertation, University of Chicago, p. 46.

Institucija na kojoj je odbranjena teza.

Citiranje periodične publikacije

Referenca naučnog rada uključuje osnovne elemente: ime autora, naslov rada, naslov naučnog časopisa, volumen i/ili broj naučne publikacije, godina štampanja i prva i posljednja strana rada.



Primjer:

Prezime autora,

Inicijal imena.

(godina izdavanja)

Naslov rada.

Teschler, L., White, P. (2000) Prospect of concentrating solar power. *Solar Energy*, 82 (3): 98-113.

Naziv časopisa,

volumen

(broj):

raspon strana.


```
tring  
if(parameters.contains("name"))  
    hql += " and p.name = :name";  
}  
8 if(parameters.contains("age")){  
9     hql += " and p.age = :age";  
10 }  
11 TypedQuery<Person> query = em.createTypedQuery(hql);  
12 if(parameters.contains("name")){  
13     query.setParameter("name", value);  
14 }  
15 if(parameters.contains("age")){  
16     query.setParameter("age", Integer.parseInt(value));  
}
```

Citiranje kompjuterskog programa

Često je neophodno jer su programski paketi autorizovani.



The Plant List

A working list of all plant species

[Home](#) [About](#) [Browse](#) [Statistics](#) [Feedback](#) [How to use this site](#)



The *Plant List* is a working list of all known plant species. Version 1 aims to be comprehensive for species of Vascular plant (flowering plants, conifers, ferns and their allies) and of *Bryophytes* (mosses and liverworts).



Collaboration between the Royal Botanic Gardens, Kew and Missouri Botanical Garden enabled the creation of *The Plant List* by combining multiple checklist data sets held by these institutions and other collaborators.



The *Plant List* provides the **Accepted** Latin name for most species, with links to all **Synonyms** by which that species has been known. It also includes **Unresolved** names for which the contributing data sources did not contain sufficient evidence to decide whether they were Accepted or Synonyms.



Global Composite Checklist

IOIS

IOPI



Summary Statistics

The *Plant List* includes 1,040,426 scientific plant names of species rank. Of these 298,900 are accepted species names.

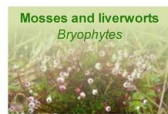
The *Plant List* contains 620 plant families and 16,167 plant genera.

The status of the 1,040,426 species names, are as follows:



Browse

Click on the major plant group of interest to explore the taxonomic hierarchy embedded within *The Plant List*.



Work down the taxonomic hierarchy from **Major Group** (to find out which Families belong to each), to **Family** (to discover the Genera belonging to each) and finally **Genus** (to list the Species in each).

Search

Enter a Genus (eg *Ocimum*) or genus and species (eg *Ocimum basilicum*).

Enter a genus or genus and species

? will match a single character. * will match any number of characters.
Use at least three letters in the genus name if you include a ? or *.



Pinus ponderosa Douglas ex C. Lawson
Aljos Fajon

Citiranje online izvora

Online izvori naučnih informacija se u kontinuitetu mijenjaju, pa je označavanje datuma izuzetno važno prilikom njihovog citiranja.





Citiranje radova sa naučnih skupova

Radovi saopšteni na skupu u formi usmenog saopštenja ili postera se štampaju u zbornicima radova.





Softveri za upravljanje referencama

Ima ih preko 30; neki kao samostalne aplikacije a neki rade unutar Internet interfejsa: npr. *Mendeley*, *EndNote*, *Reference Manager*, *Zotero*.

Ostali elementi završnog dijela rada

01

Acknowledgement

02

Index



03

Appendix

Ostalo:

*Supplementary Material
Conflicts of Interest
Author Contributions*



Grafičko prikazivanje podataka

Sagledana zavisnost numeričkih podataka se izražava pomoću različitih formi grafičkih prezentacija u vidu tabela i brojnih tipova ilustracija.





Tabele

Cilj je sumarno predstavljanje podataka naučnih otkrića, grupisanje specifičnih setova podataka kojim se postiže njihovo poređenje i uočavanje međusobnih relacija.



Primjer:

Table 2. The CIELab system value of celluloses from *P. pinaster* Aiton subsp. *atlantica*.

Sample	Process.	L*	a*	b*	WI (%) ¹
Crude cellulose	Hydrolysis with a mixture of acetic acid (CH ₃ COOH) and nitric acid (HNO ₃)	81.21 ± 0.10	3.93 ± 0.12	19.27 ± 0.06	72.8
Holocellulose	Digestion with a mixture of acetic acid (CH ₃ COOH) and sodium chlorite (NaClO ₂)	79.92 ± 0.19	6.23 ± 0.20	20.11 ± 0.03	70.9
α-Cellulose	Hydrolysis with sodium hydroxide (NaHO)	82.71 ± 0.19	3.31 ± 0.20	11.13 ± 0.03	79.2

¹ The whiteness index (WI%) was calculated using the equation $100 - \sqrt{(100 - L^*)^2 + a^{*2} + b^{*2}}$; L* represents perceptual lightness; a* axis represents the red–green colour spectrum, with positive values indicating red and negative values indicating green; b* axis represents the yellow–blue colour spectrum, with positive values indicating yellow and negative values indicating blue.





Ilustracije

Pod ilustracijama se podrazumijevaju crteži, slike, fotografije, histogrami, grafikoni, karte i mape, a uobičajeno je da se svi navedeni tipovi nazivaju jednim imenom: slika.



Primjer:

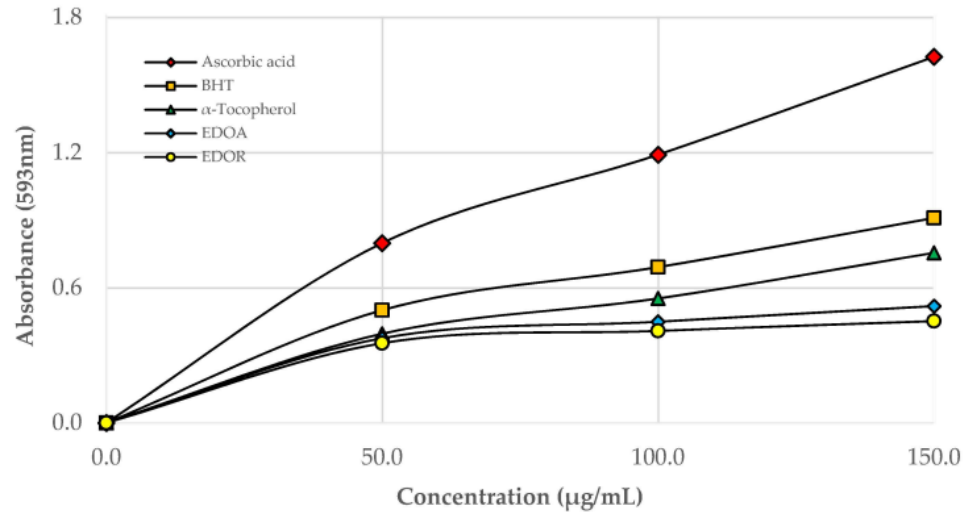


Figure 2. The reducing abilities of ethanol extract of aerial parts (EDOA) and roots (EDOR) of sahlep (*D. osmanica*) and standards.

Pitanja?



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