# Research & Writing Skills: Good in Writing A Scientific Paper in English and Bahasa Indonesia

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[3]Chairman of Technical and Education Activities (TEA), Senior Member, IEEE Indonesia Section, 2020, 2021, 2022
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Bandung, 2 June 2023

# Following Sinusoidal Wave


1

2

3


1996–2000 : B. Eng., Institut Teknologi Bandung (ITB)
2000–2002 : PT. Astragraphia Information Technology, Jakarta
2002–2003 : Tokyo Institute of Technology
2003–2005 : M. Eng, Nara Inst. of Science and Tech. (NAIST)
2005–2008 : Dr. Eng., Nara Inst. of Science and Tech. (NAIST)
2008–2016 : Asst. Prof., Japan Adv. Inst. of Sci. and Tech. (JAIST)
2016–Present : Asct. Prof., School of Electrical Eng., Telkom University

[1] Best Student Paper Award, IEEE RWS'06, California, USA, Jan 2006.

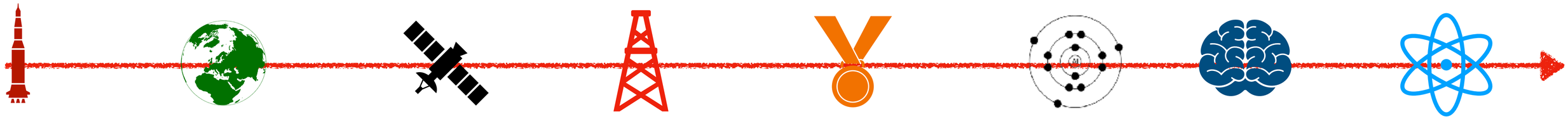
[2] Master and PhD Thesis are adopted by ITU-R Standard for Satellite Communication in the world, 2011.

[3] Achmad Bakrie Award 2014.

# PUI-PT AICOMS Transformation

- AICOMS (formerly AdWiTech) established in September 2016 and received funding from national and international funding bodies.

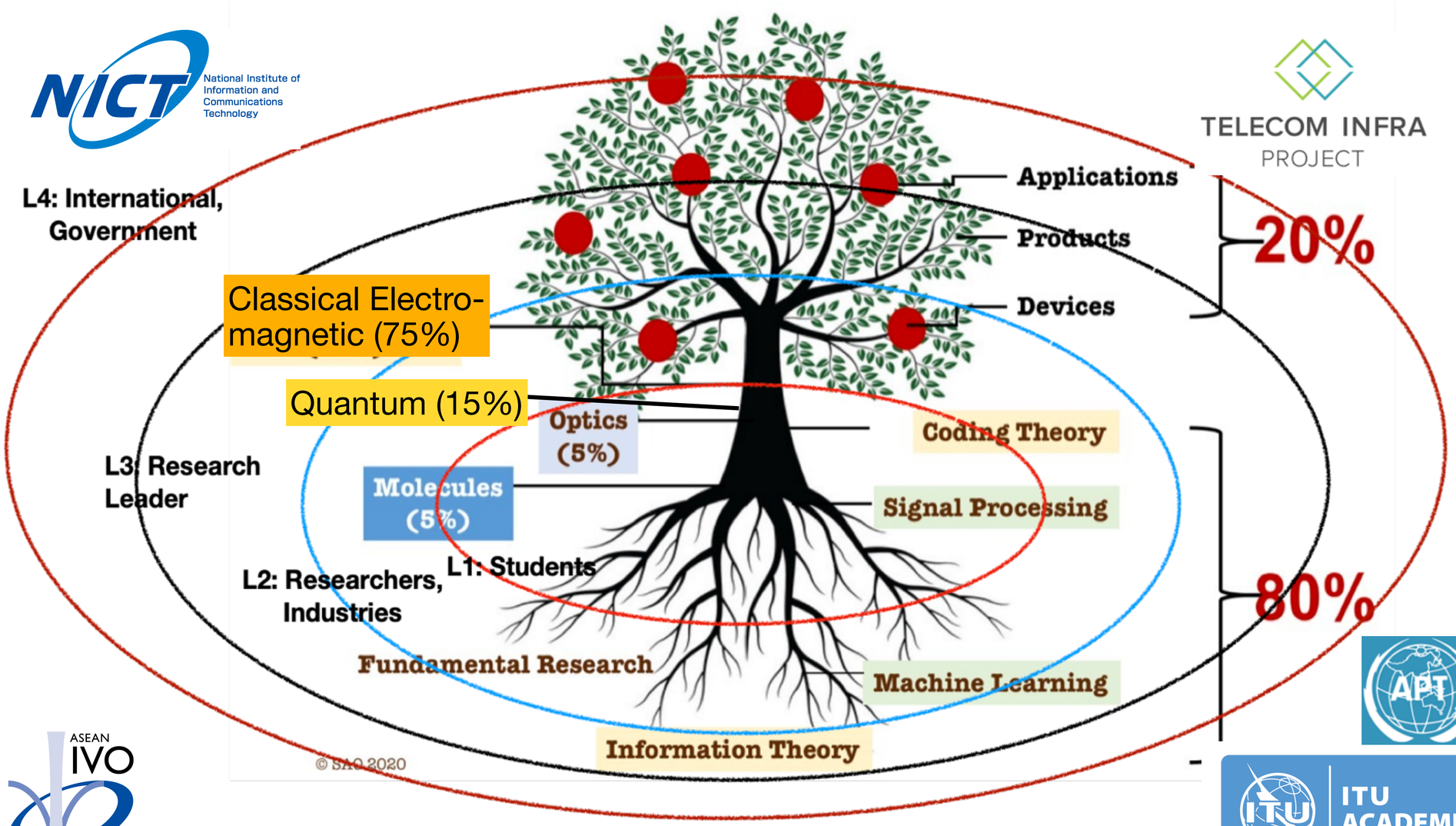
PUSAT UNGGULAN IPTEKS PERGURUAN TINGGI



| 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|
| AdWiTech center for Telkom University | AdWiTech center for Telkom University | AdWiTech center for Telkom University | AdWiTech center for Telkom University | AICOMS The University Center of Excellence for Advanced Intelligent Communications - Telkom University | AICOMS The University Center of Excellence for Advanced Intelligent Communications - Telkom University | AICOMS The University Center of Excellence for Advanced Intelligent Communications - Telkom University | AICOMS The University Center of Excellence for Advanced Intelligent Communications - Telkom University |
| Est 2016 | EPSRC Engineering and Physical Science Research Council | lpdp lembaga pengelola dana pendidikan | lpdp lembaga pengelola dana pendidikan | ICT Virtual Organization of ASEAN Institutes and NICT | BRIN, kedaireka, KOMINFO | lpdp lembaga pengelola dana pendidikan, KOMINFO | 6G Beyond 5.5G Laboratory, lpdp lembaga pengelola dana pendidikan, KOMINFO |
| Established since Sept. 2016 | **RP700M**<br>• EPSRC UK<br>• Ristekdikti<br>• Internal | **RP2.5B**<br>• LPDP Rispro<br>• Ristekdikti<br>• Insinas | **RP2.5B**<br>• LPDP Rispro<br>• Ristekdikti<br>• Insinas | **RP4B**<br>• ASEAN IVO<br>• LPDP Rispro<br>• Ristekdikti<br>• PUI-PT<br>• Kemendikbud | **RP4B**<br>• ASEAN IVO<br>• LPDP Rispro<br>• Kominfo<br>• PUI-PT<br>• Kemendikbud<br>• BRIN | **RP5.4B+**<br>• ASEAN IVO<br>• LPDP Rispro<br>• Kominfo<br>• PUI-PT<br>• BRIN | **RP3B+?**<br>• Huawei<br>• LPDP Rispro<br>• Kominfo<br>• BRIN |

# AICOMS Vision and Mission on Impactful Research

- Becoming one of the **world-class leading research center** in the field of Advanced Intelligent Communications




1. Developing model for ideal collaborative research.
2. Enhancing research quality towards world-class recognition.
3. Enhancing research collaboration with other universities, industry, start-up company, and goverment to build world-class leading research center in the field of Advanced Intelligent Communications.

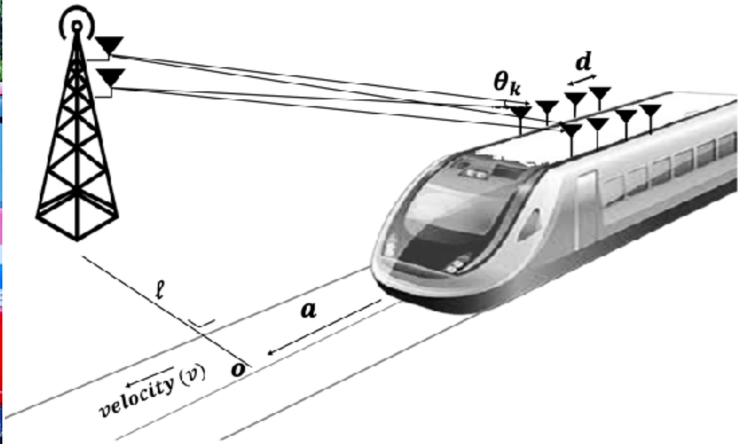
# AICOMS Current 5 Top Products/Projects

(1) MCRBS
& 5G-MERDEKA

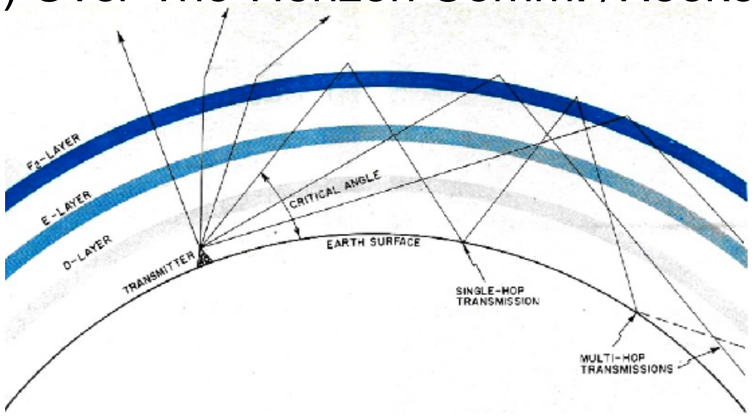
Mobile Cognitive
Radio Base Station

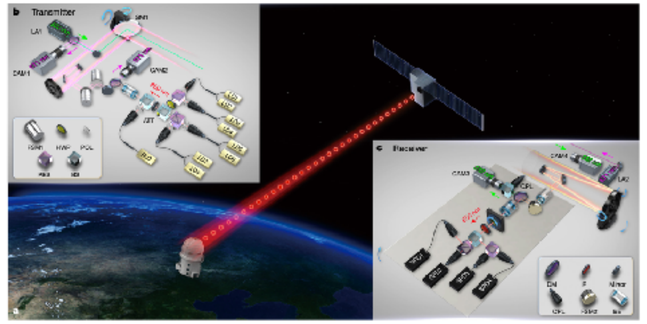

image: © K. Anwar, Telkom University, 2020.

(2) High speed train
(5G-FRMCS)




(3) Over-The-Horizon Comm. /Rocket



(4) Next Generation IoT

(5) AI, Quantum Coding & Future Security

| Contention-based Access | IoT Technologies | Throughput |
|---|---|---|
| Pure ALOHA | SigFox, LoRa | 0.18 pck/slot |
| Slotted ALOHA | RFID, RACH of LTE, NB-IoT (CIoT), Weightless | 0.37 pck/slot |
| Non-slotted CSMA/CA | Zigbee, WiFi | 0.5–0.8 pck/slot |
| Slotted CSMA/CA | Zigbee | 0.8 pck/slot |
| Coded Random Access | AICOMS, Telkom Univ. | 0.9-3.7 pck/slot |

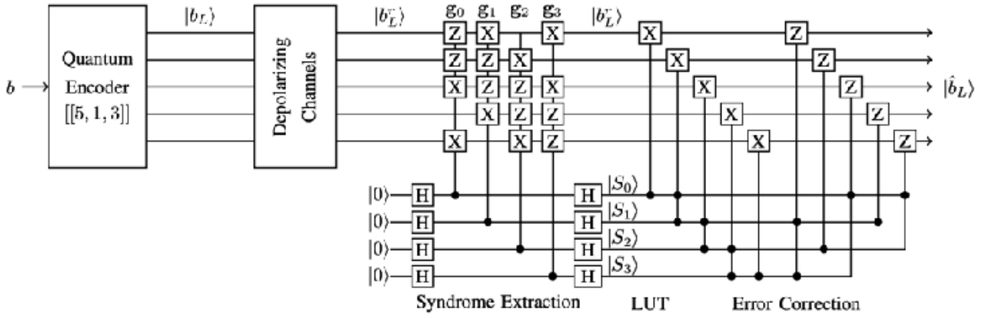
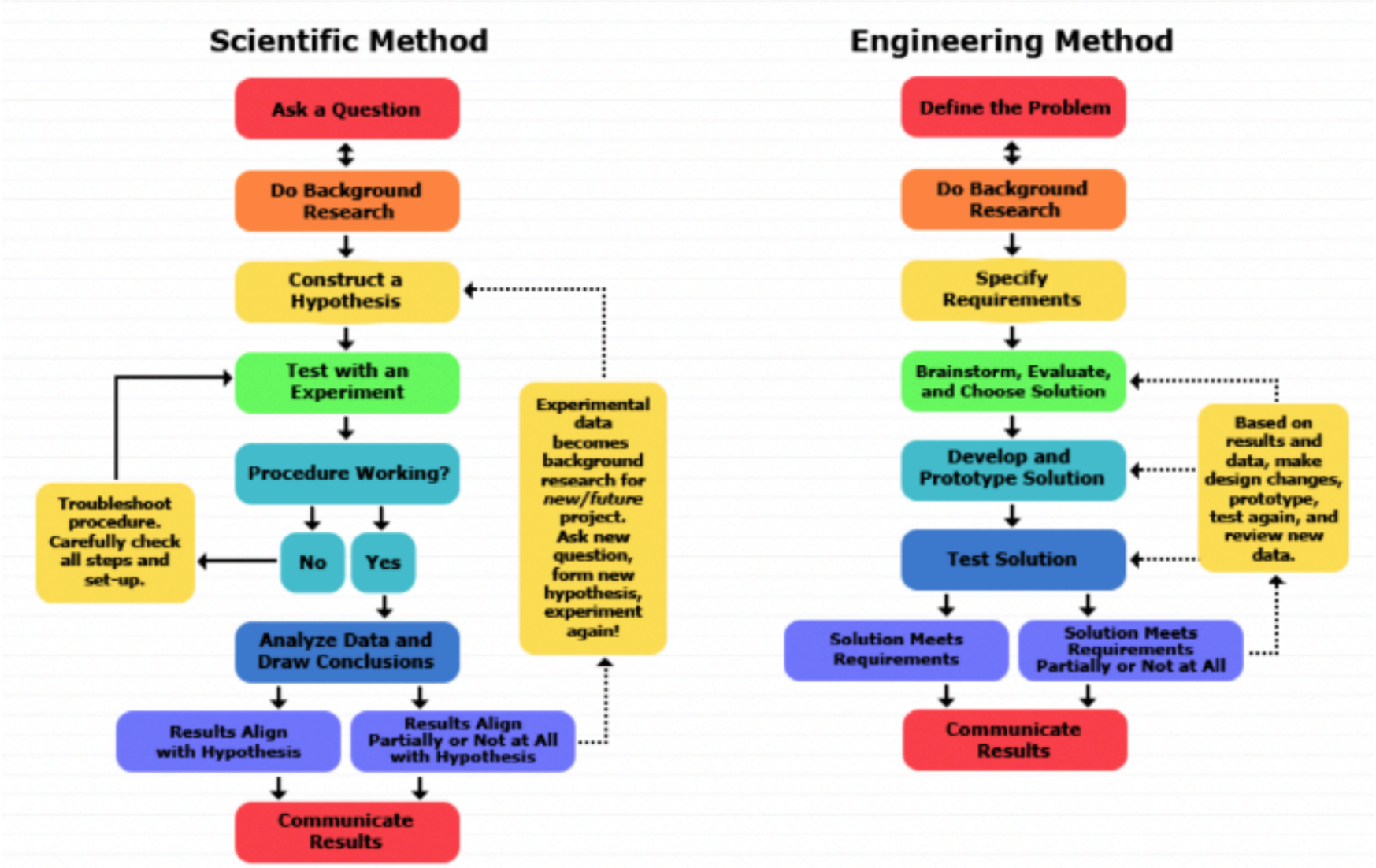



Fig. 3. The quantum circuit of the proposed perfect [[5, 1, 3]] quantum accumulate codes.

image: © K. Anwar, IEEE APCC2021.

# Scientific and Engineering Methods




- **Scientists** study how nature works and discover a new knowledge about the universe.
- **Engineers** create or construct new things, product, environment, experience.
- **Scientist** start from asking questions and perform experiments to answer.
- **Engineers** start from identifying problems and create solutions.

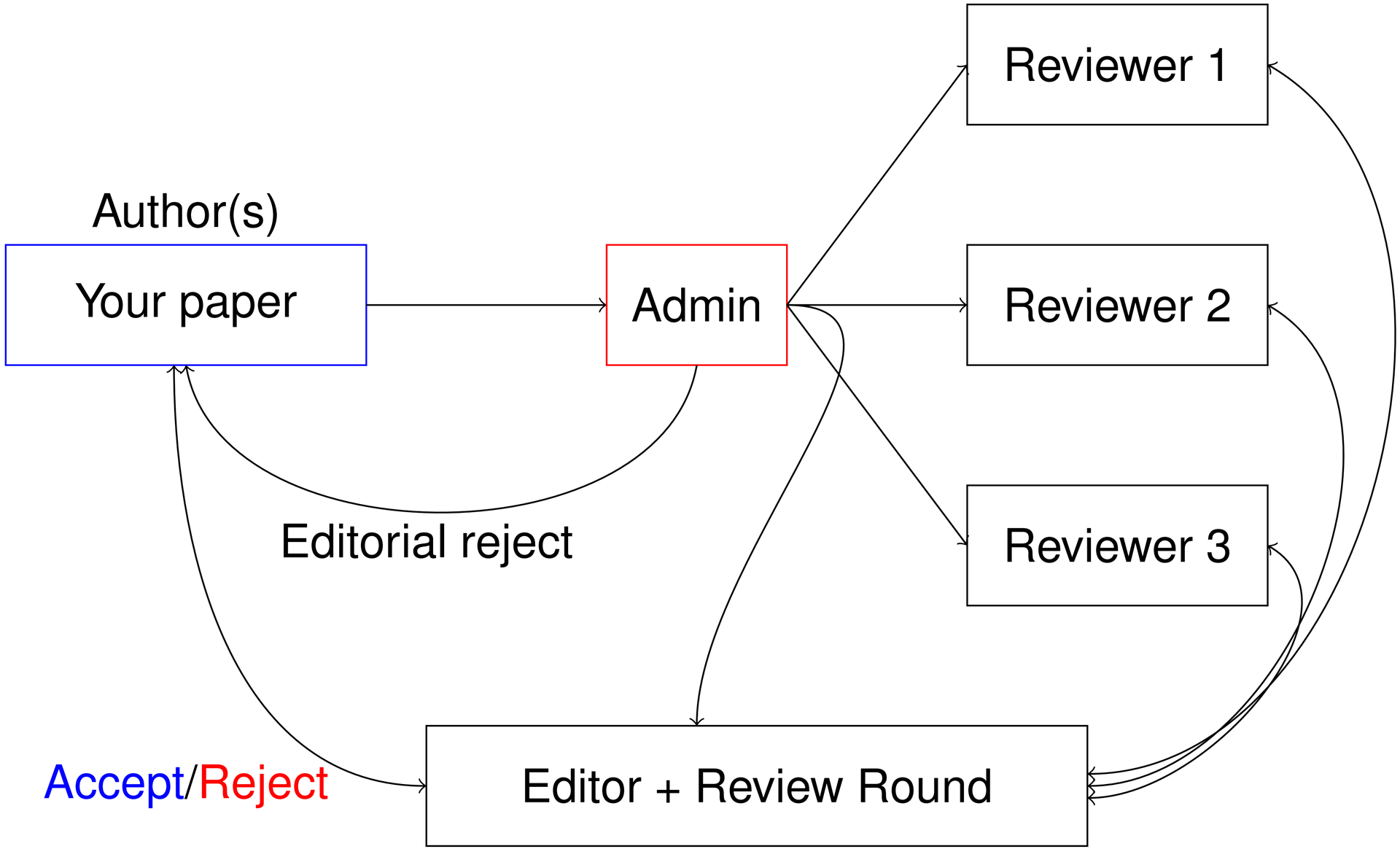
image: studylib.net

# Mengapa Menulis Yang Baik

- TA, Thesis, Disertasi, Papers (Journal or conference) menunjukkan kualitas universitas.
- TA, Thesis yang bagus membantu lulus S1 dan melanjutkan S2, S3 di Luar Negeri.
- TA,Thesis, Disertasi dilakukan sekali seumur hidup. Persembahkan yang terbaik yang bisa dilakukan.
- TA memori official yang tersimpan dalam kampus ini.
- Filosofi thesis/TA: Detailed Review dari hasil ” riset” Anda, sebaiknya publikasi dulu, baru menjadi thesis.

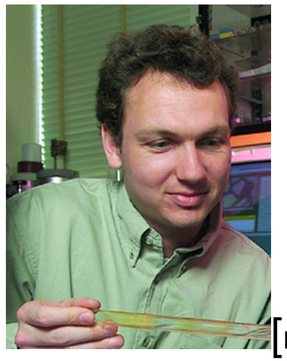
| | Mr. A | Mr. B | Mr. C |
|---|---|---|---|
| Paper 1 | 4 | 1633 | 55 |
| Paper 2 | 2 | 1 | 19 |
| Paper 3 | 2 | 0 | 10 |
| Paper 4 | 1 | 0 | 5 |
| Paper 5 | 0 | 0 | 1 |
| Citation | 9 | 1634 | 90 |
| h-index | | | |

# Flow of A Paper Prior to Publication




- Prepare the best paper prior to submission.
- Three possible rejections:
  - 1. Admin: English, Basic requirement
  - 2. Editor only: Easily identified of Lack of Novelty
  - 3. Editor + Reviewer:

# Apa Yang Harus Dihindari



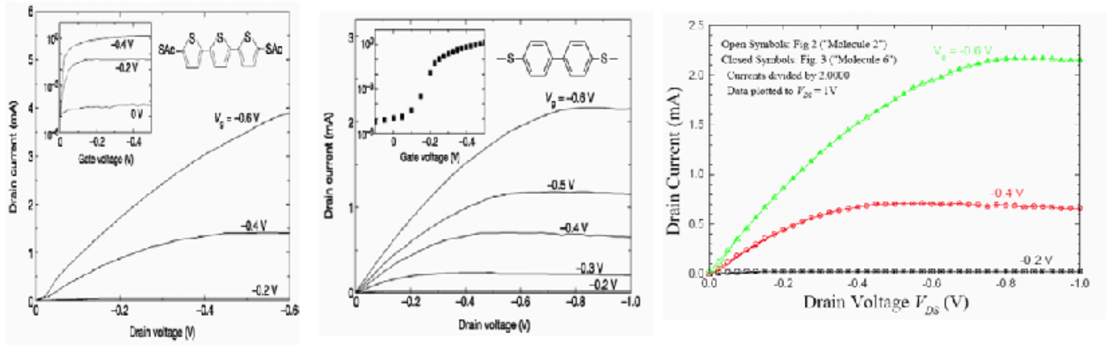
[Image: Wikipedia.]

- Plagiarism
- Kebohongan: Ingat Schön Scandal (Jan Hendrik Schön, Fisika, Jerman, 28 journal dicancel, 8 journal dipertanyakan validitasnya).[8]
- Kurang argumen dalam pemilihan topik
- Struktur paper tidak jelas/muter-muter
- Salah citations
- Salah grammar
- Indecipherable English is a valid reason for rejection.

[8] Lulus PhD 1997, tentang on/off behavior, far beyond anything achieved thus far with organic meaterials. His measurements in most cases confirmed various theoretical predictions, for example that the organic materials could be made to display superconductivity or be used in lasers.

## Examples of Misconduct (I)

- Data substitution: Triode characteristics--data falsification




Left: Triode data from "SAMFET" Paper (XII), Fig. 3: "molecule 6". The figure has been compressed laterally for comparison.

Middle:Triode data from "SAMFET" Paper (XII), Fig. 2: "molecule 2"

Right: Original plotting data from middle and left figure ,replotted to illustrate that the data present in both are exactly the same, after dividing the latter by 2. All but a few of the solid symbols are within the open symbols, and agree with each other to five significant figures, although they represent distinct data sets.

## Examples of Misconduct (II)

- Unrealistic Precision: Resistance of CaCuO2

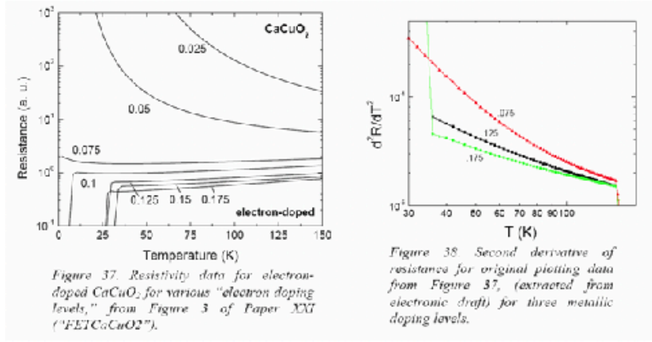



*Figure 37. Resistivity data for electron-doped $CaCuO_2$ for various "electron doping levels," from Figure 3 of Paper XXI ("FETCaCuO2").*

*Figure 38. Second derivative of resistance for original plotting data from Figure 37, (extracted from electronic draft) for three metallic doping levels.*

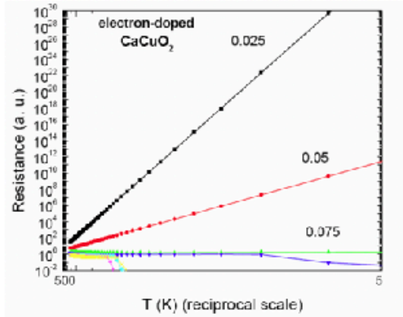
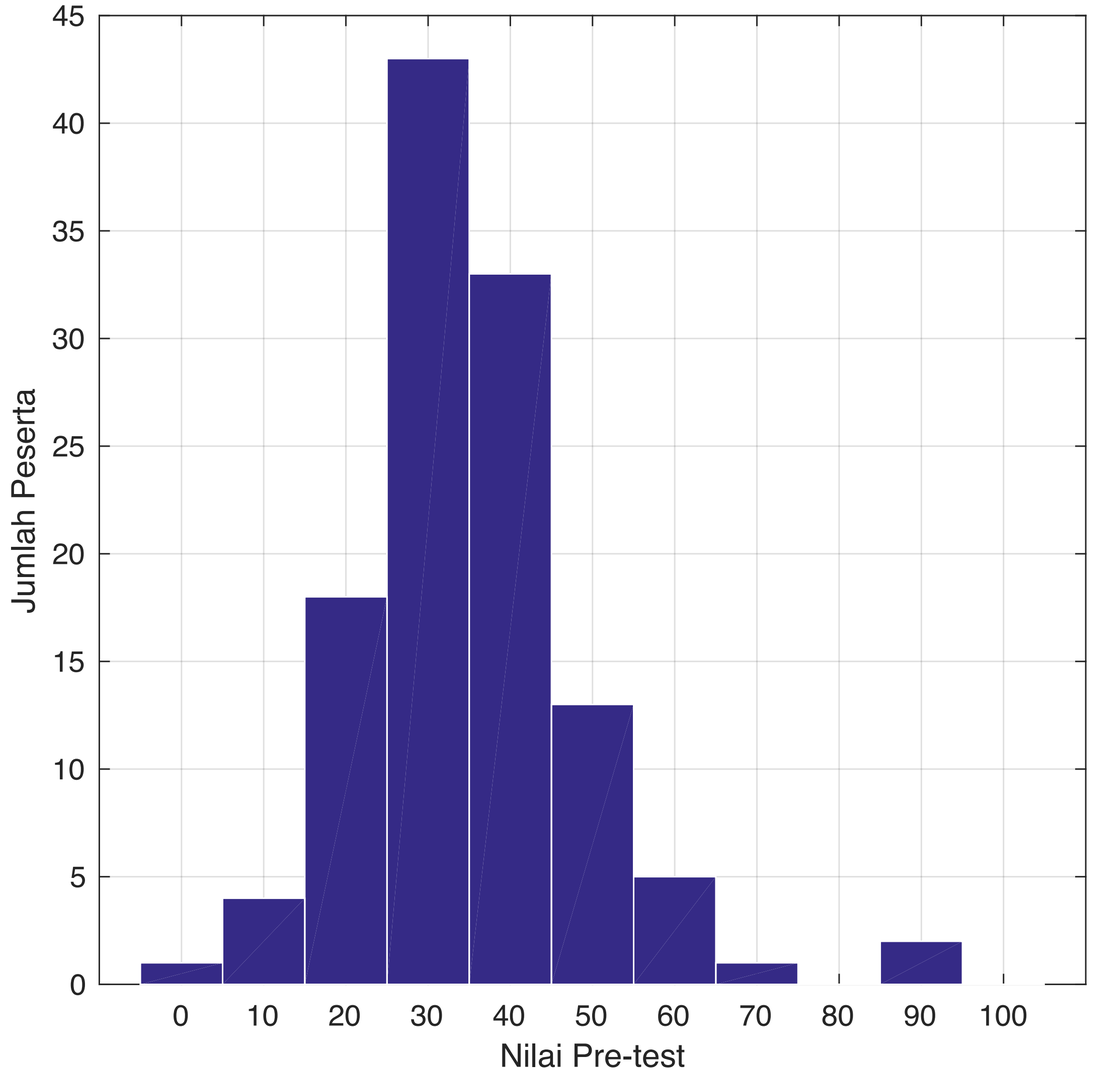



*Figure 39. Resistivity data from Figure 37 (extracted from electronic draft), replotted on an Arrhenius plot to emphasize the insulating regime of gate voltage. The reported resistivity follows an activated behavior over more than 25 decades.*

image: Zhiping Yin, May 2007.

# Analisis Tugas dan Pre-Test (1/4)

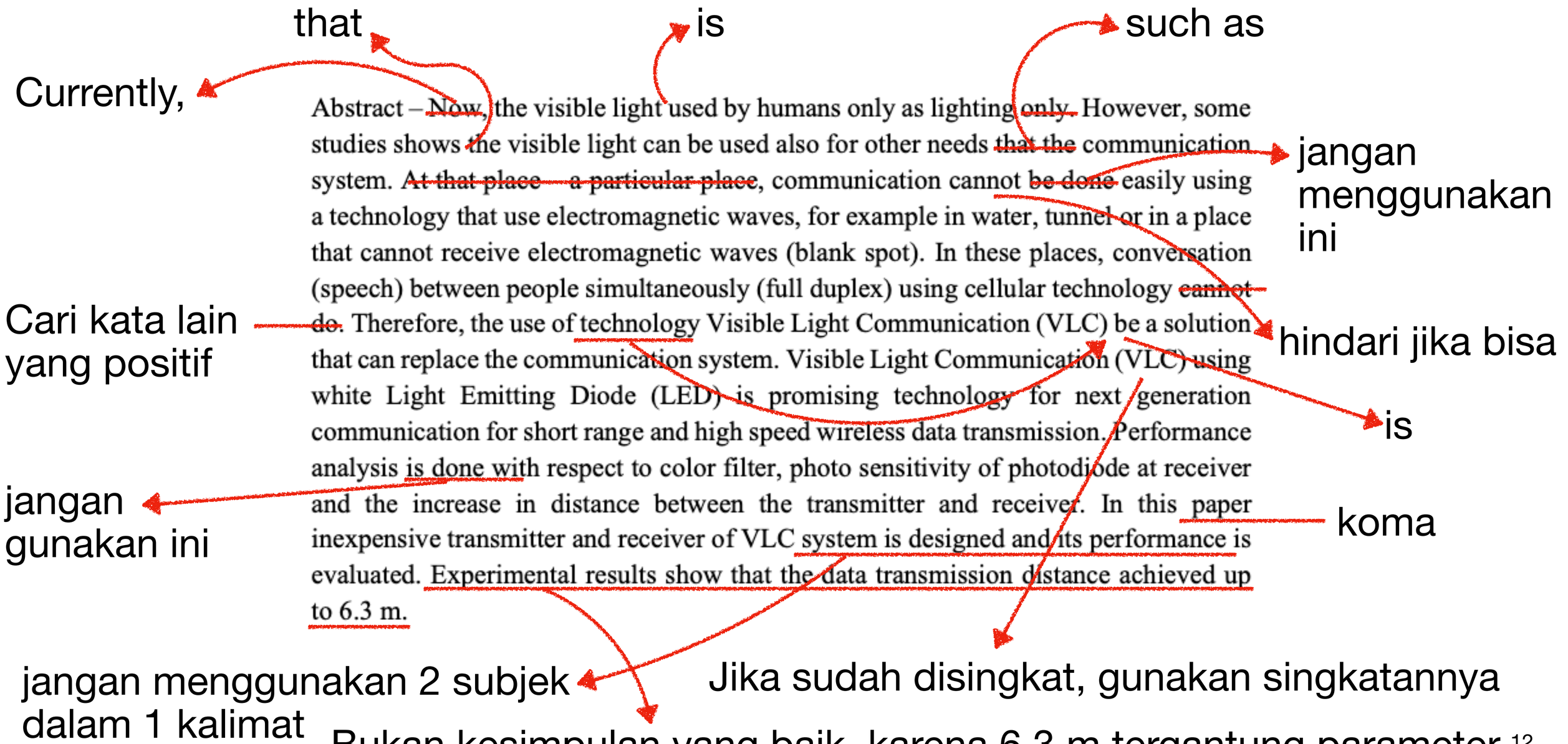
- 104 peserta mengerjakan tugas
  - Kesalahan utama: grammar —> **solusi**: berkali-kali diperiksa
  - Pilihan kata kurang banyak —> **solusi**: banyak membaca paper high quality
- 120 peserta mengerjakan quiz
  - Score 0/100: 1 orang
  - Score 10/100: 4 orang
  - Score 90/100: 2 orang
  - Nilai **Rata-rata 35/100**.
  - **Solusi**: banyak membaca paper high quality



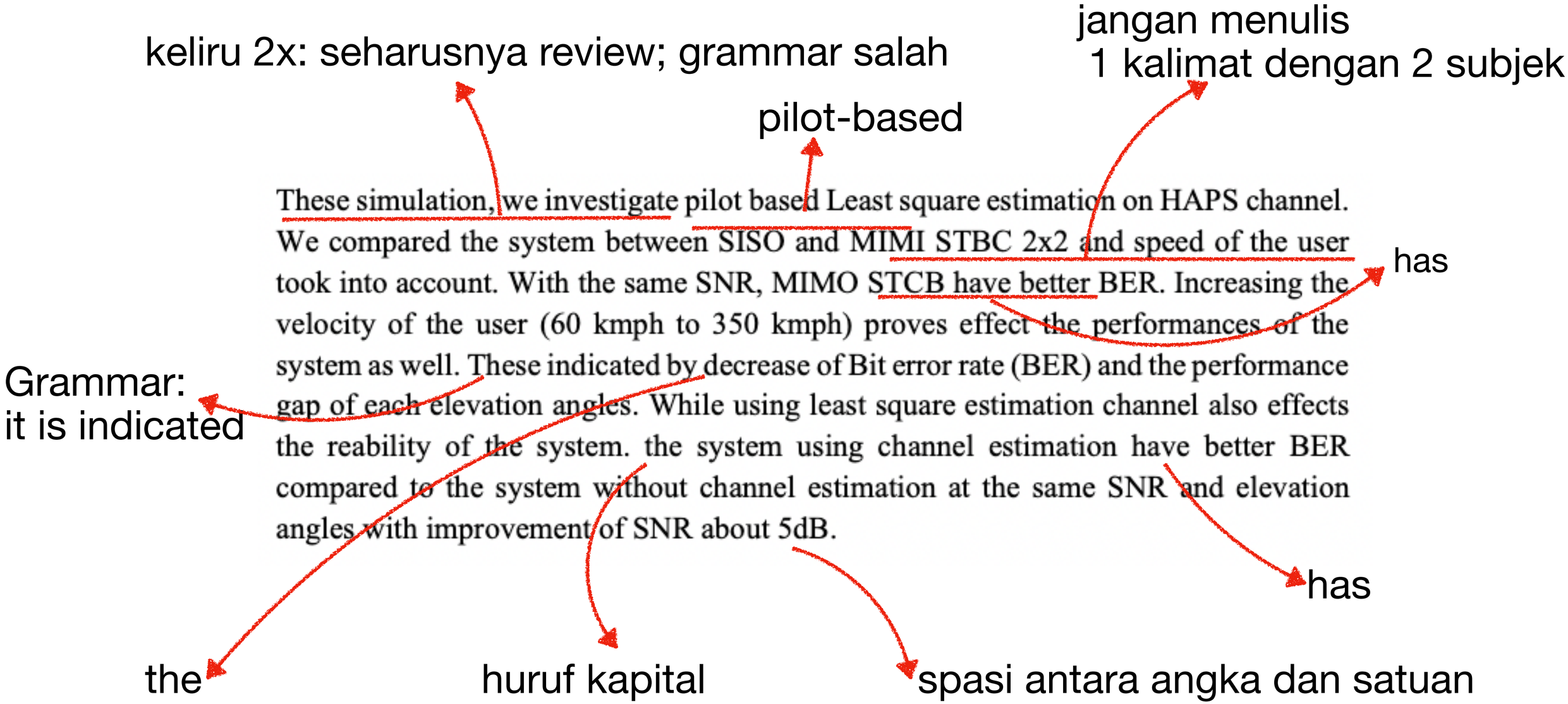
# Analisis Tugas dan Pre-Test (2/4): Hikmah

- Contoh ini hanya sekedar contoh, karena yang dicek bukan isi kalimatnya, tapi tata cara penulisannya.
- Kesalahan:
  - Grammar <—- terbanyak
  - Tidak paham filosofi kalimat: Tidak boleh ada 2 subjek dalam 1 kalimat
  - Tidak hati-hati dalam huruf besar kecil
  - Tidak paham filosofi singkatan
  - Tidak bisa membedakan singkatan dan variable
  - Tidak tahu bahwa dalam tulisan ilmiah diusahakan tidak menggunakan kata negatif (juga emosi).

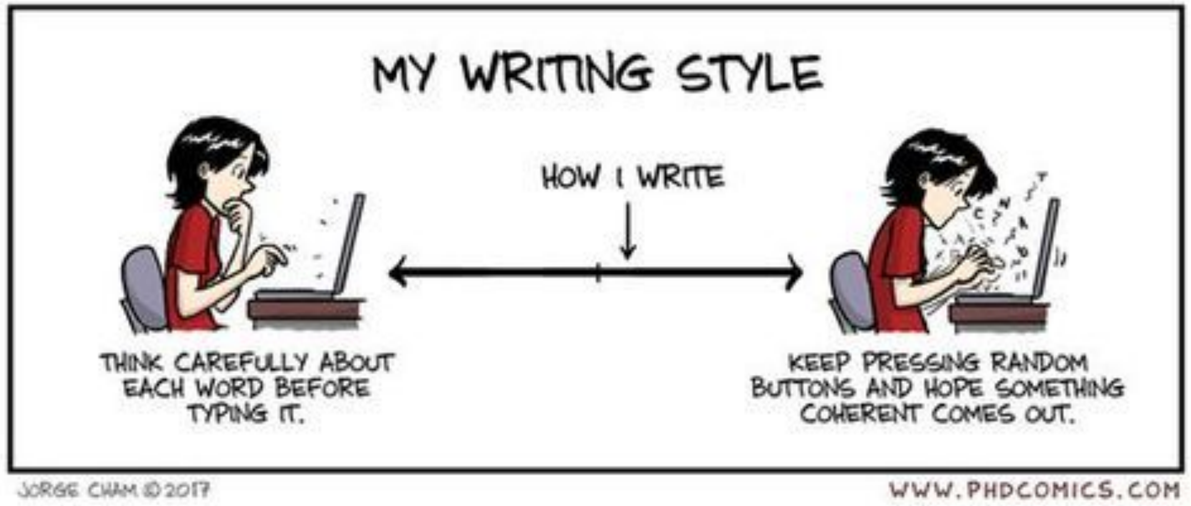
# Analisis Tugas dan Pre-Test (3/4)



# Analisis Tugas dan Pre-Test (4/4)



# Problem Menulis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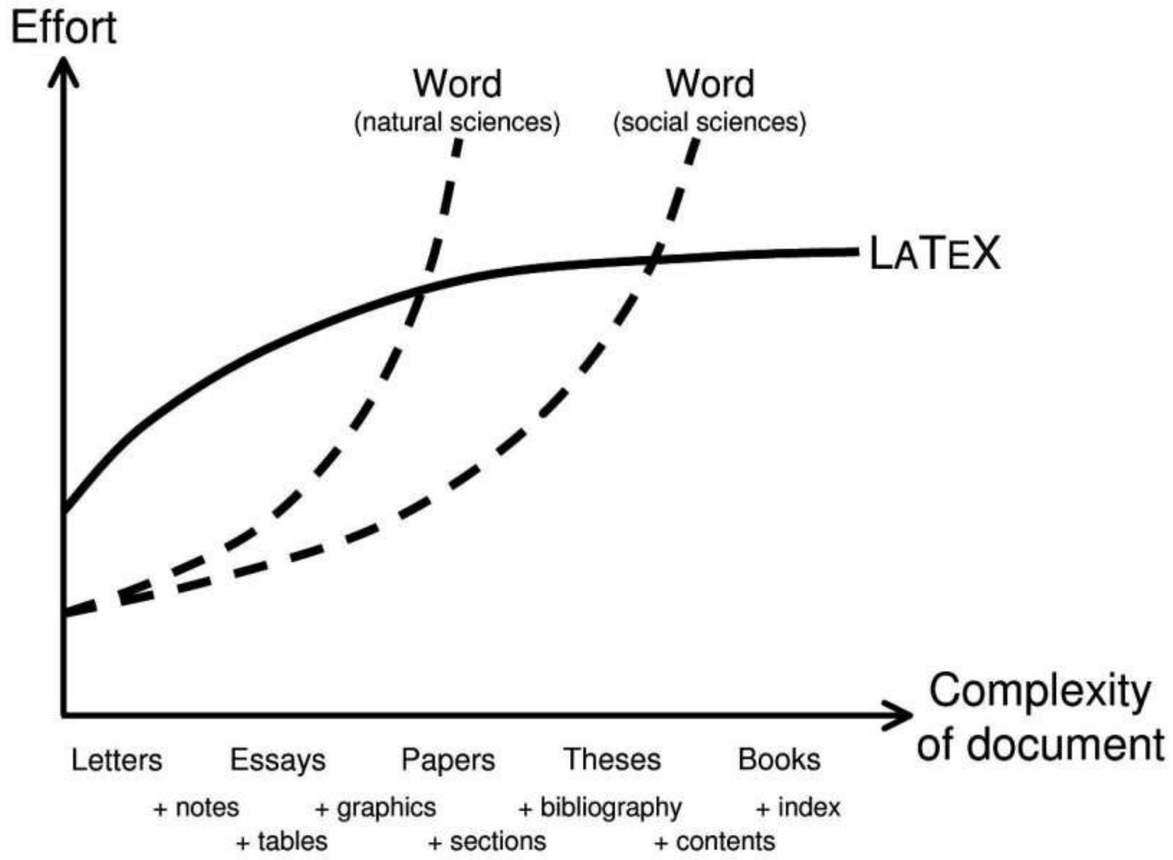



- Manakah cara terbaik dan tercepat dalam menulis?
- Manakah yang baik? menulis esensi atau sibuk dengan format?

# The Most Basic Principle of Writing

- Brevity
- It is not to save valuable publication space, but verbose writing obscures meaning and wastes the reader’s time and patience.
- Logic and Clarity
- What you want to say should be so arranged that the reader can follow your argumentation step by step.
- Clean Typing
- Make sure your manuscript is carefully prepared.

# Active or Passive Voice ?

Here is the classic formula for identifying the passive voice:

A "to be" verb + a past participle + the word *by*.

- Active voice: The lion ate the mouse.

**ate**

- Passive voice: The mouse was eaten by the lion.

**was eaten by**

In the active voice sentence, the actor (the lion) is presented first, followed by the action (eating) and then the object of that action (the mouse). In the passive voice sentence, the order is reversed.

# Active or Passive Voice ?

- "*Many books and guides on scientific writing currently advice authors to use the active voice whenever possible. The main argument is that the active voice helps to make the writing clear and concise. This represents a change from the situation in the major part of the 20th century, when the passive voice was characteristic of scientific writing in general. “*
- (Leong Ping Alvin, The passive voice in scientific writing. The current norm in science journals, Journal of Science Communication, SISSA – International School for Advanced Studies, 2014)
- Using a corpus of 60 scientific research articles from six journals.

# Passive voice is about 30%

Use active voice when suitable, particularly when necessary for correct syntax (e.g., "To address this possibility, we constructed a λZap library . . . ," not "To address this possibility, a λZap library was constructed . . . ").

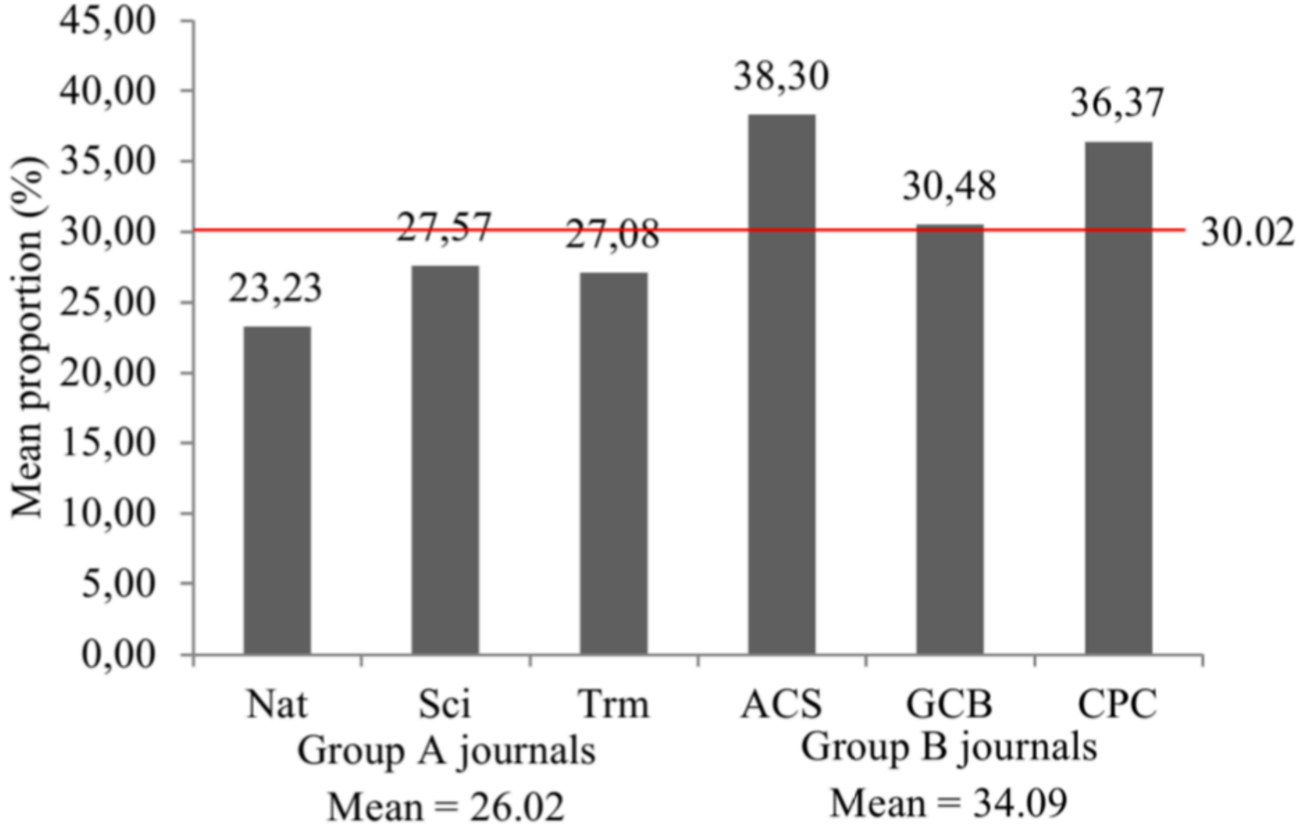



**Figure 1**. Mean proportions of passive clauses. The red horizontal line represents the corpus mean.

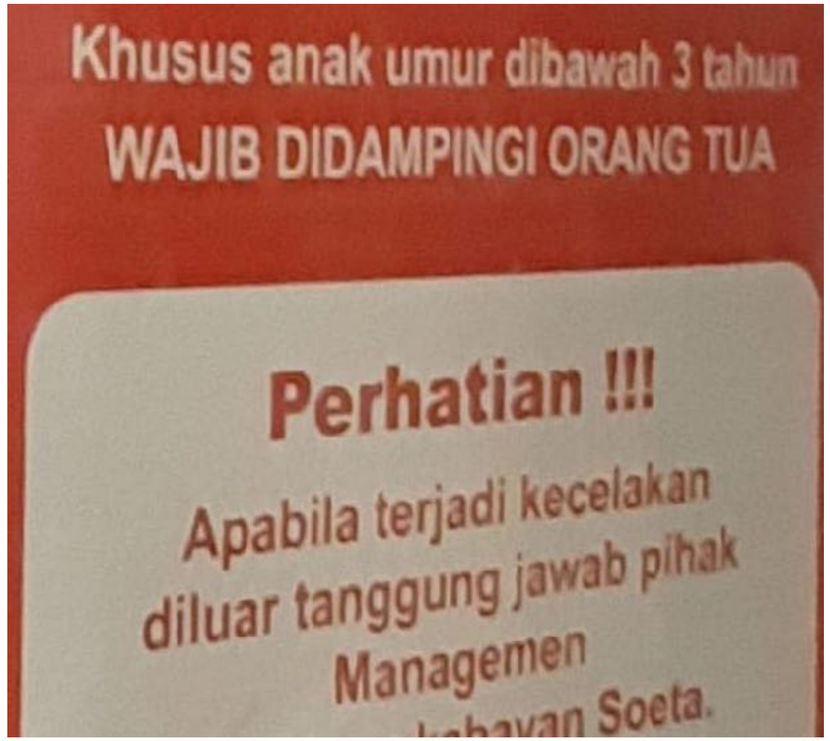
**Group A**: had specific statements on their websites encouraging authors to use the active voice whenever possible.

Image: Leong Ping Alvin, 2014

# Kesalahan 1: Nyata di Masyarakat


Kiri:
(1) Keliru tata bahasa,
(2) Kalimat inversi,
(3) Berbelit-belit.

Kanan:
(1) Keliru tata bahasa,
(2) tidak jelas subjek,
(3) inversi.




- **Seharusnya:**
- Kiri:
  ”Mesin Kendaraan Yang Parkir di Sini Mohon Dimatikan!”.
- Kanan:
  ”dibawah” → ”di bawah”, ”diluar” → ”di luar”. ”Apabila kecelakaan terjadi, seluruh kerugian di luar tanggung jawab pihak manajemen”.

# Kesalahan 2: Di Tugas Akhir

- Bahasa dengan EBI yang tidak baik:

  *”Pada Tugas Akhir ini, mengusulkan teknik XYZ....”*

- Hindari kalimat Inversi dalam Tulisan Ilmiah

  *”Pada sore hari berjalanlah seekor kelinci mungil...”*

  *”Dari gambar tersebut didapatkan bahwa teknik XYZ...”*

  *”Pada Tugas Akhir ini, diusulkan teknik XYZ....”*

- Kesalahan “grafik”

  *“Grafik tersebut menunjukkan bahwa…”*

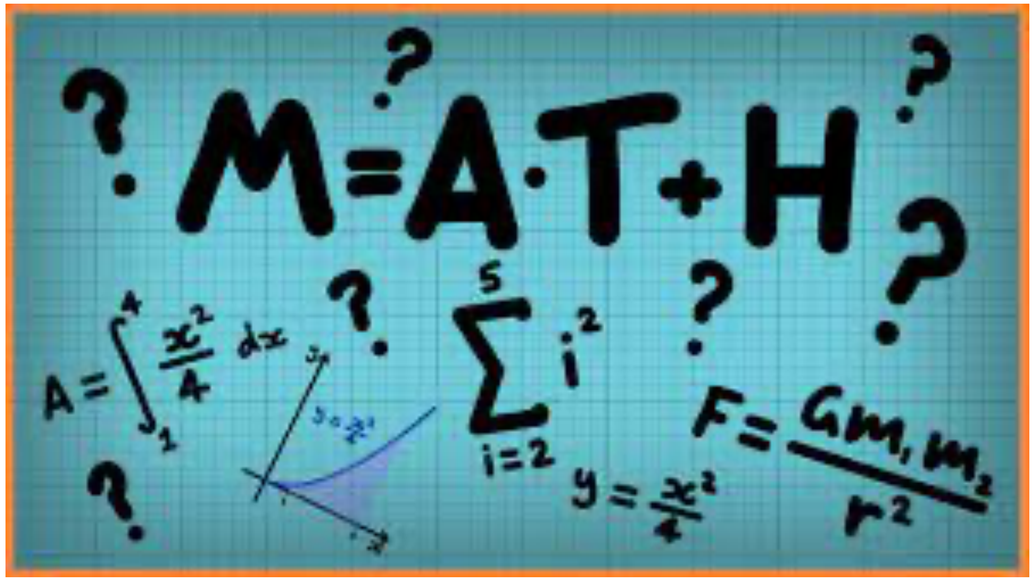
- Bahasa dengan EBI yang baik:

  *”Tugas Akhir ini mengusulkan teknik XYZ....”*

  *”Pada Tugas Akhir ini, teknik XYZ diusulkan....”*

# Kesalahan 3: Mixing Word and Math

- We use a blocklength = 12 bits. (X)
- We use a blocklength of 12 bits. (O)
- We use a blocklength $N = 12$ bits. (O)

# Kesalahan 4: Persamaan

- Equation should be in part of a sentence.
- Independent equation should be avoided.
- Salah:
  "Tugas Akhir ini menggunakan kapasitas Shannon yang dituliskan dengan (1) [3].

$$C = B\log_2(1+\gamma) \qquad (1)$$"

- **Benar 1 (tengah kalimat):**
  "Tugas Akhir ini menggunakan kapasitas Shannon [3]

$$C = B\log_2(1+\gamma) \qquad (2)$$

  dengan $\gamma$ adalah signal-to-noise power ratio (SNR)."
- **Benar 2 (akhir kalimat):**
  "Dengan $\gamma$ adalah signal-to-noise power ratio (SNR), Tugas Akhir ini menggunakan kapasitas Shannon [3]

$$C = B\log_2(1+\gamma). \qquad (3)$$"

# Kesalahan 5: Pemilihan Kata

- The word ”data” is plural, not singular.
- Use the word ”whereas” instead of ”while” (unless you are referring to simultaneous events).
- Do not use the word ”issue” as a euphemism for ”problem.”
- Be aware of the different meanings of the homophones ”affect” (usually a verb) and ”effect” (usually a noun), ”complement” and ”compliment,” ”discreet” and ” discrete,” ”principal” (e.g., ”principal investigator”) and ”principle” (e.g., ”principle of measurement”).
- Prefixes such as ”non,” ”sub,” ”micro,” ”multi,” and ”ultra” are not independent words; they should be joined to the words they modify, usually without a hyphen.
- There is no period after the ”et” in the Latin abbreviation ”*et al.*” (it is also italicized).

# Kesalahan 6: “Fig.” or “Figure”

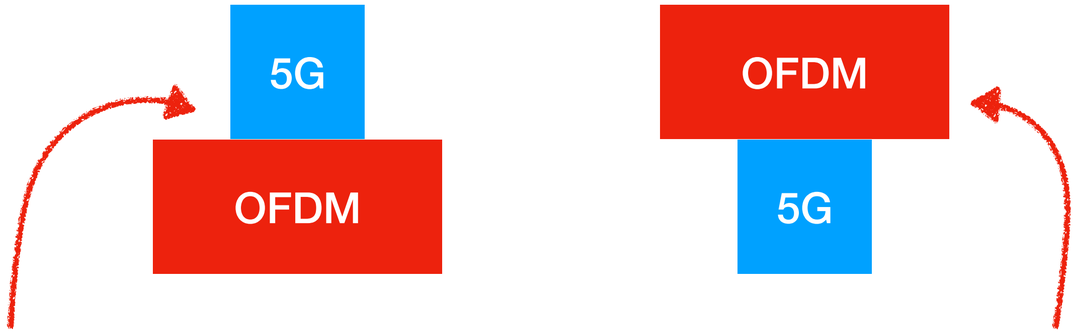
- IEEE: Use the abbreviation ”Fig.” even at the beginning of a sentence.
- IEICE: Use the abbreviation ”Fig.” except at the beginning of a sentence.
- Please do not include captions as part of the figures.
- Figure axis labels are often a source of confusion. Use words rather than symbols. As an example, write the quantity ”Magnetization,” or ”Magnetization M,” not just ”M.” Put units in parentheses.
- Do not label axes with a ratio of quantities and units. For example, write ” Temperature (K),” not ”Temperature/K.”
- Multipliers can be especially confusing. Write ”Magnetization (kA/m)” or ” Magnetization ($10^3$A/m).” Do not write ”Magnetization (A/m) × 1000.”

# Kesalahan 7: Citation and References

- Number citations consecutively in square brackets [1]. Multiple references [2], [3] are with separate brackets [1]–[3].
- In sentences, refer simply to the reference number, as in [3]. Do not use ”Ref. [3]” or ”reference [3]” except at the beginning of a sentence: ”Reference [3] shows ... .”
- Give all authors names; do not use ”*et al.*” unless there are six authors or more.
- Use a space after authors initials. ”K. Anwar” not ”K.Anwar.”
- Use one space after periods and colons.
- Avoid dangling participles, such as, ”Using (1), the potential was calculated.” Write instead, ”The potential was calculated by using (1),” or ”Using (1), we calculated the potential.”
- The abbreviation for ”seconds” is ”s,” not ”sec.”
- Do not mix complete spellings and abbreviations of units: use ”$\mathrm{Wb/m^2}$” or ”webers per square meter,” not ”webers/m$^2$.”
- When expressing a range of values, write ”7 to 9” or ”7–9” not ”$7 \sim 9$.”

# Kesalahan 8: Hyphen

“OFDM based 5G” ???




- Salah meletakkan Hyphen: “OFDM-based 5G” atau “OFDM based on 5G”
- In American English, periods and commas are within quotation marks, like ”this period.” Other punctuation is ”outside”!
- Avoid contractions; for example, write ”do not” instead of ”don’t.” Write ”Let us” instead of ”Let’s.”
- The serial comma is preferred: ”A, B, and C” instead of ”A, B and C.”
- If you wish, you may write in the first person singular or plural and use the active voice (”I observed that ...” or ”We observed that ...” instead of ”It was observed that ...”).

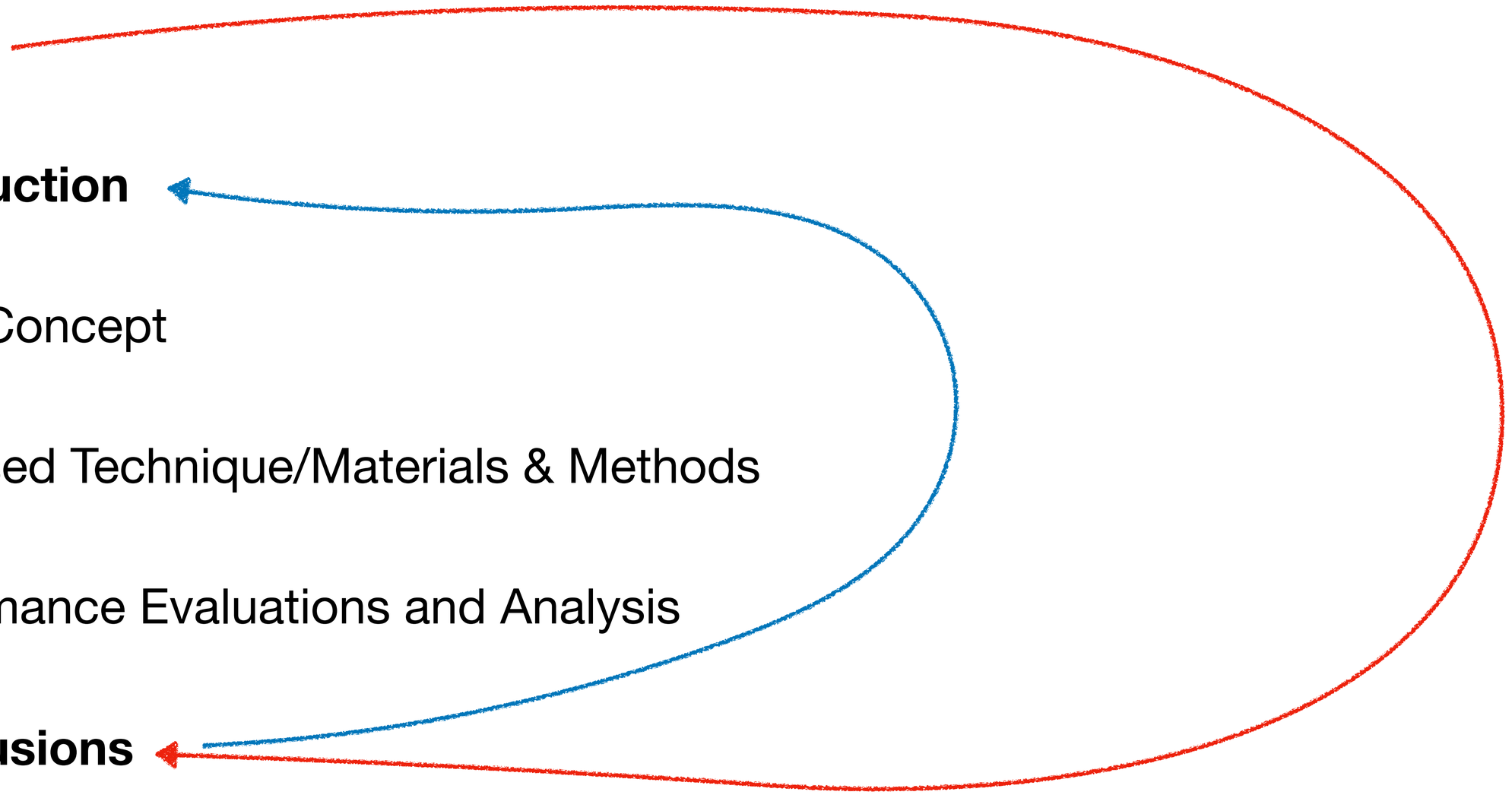
# Kesalahan 9: “Di Mana”

dimana $c_i \in GF(q^m)$. Sehingga diperoleh himpunan koefisien $K = \{c_0, c_1, \ldots, c_7\}$. Misalkan himpunan indeks $I = \{i | c_i \neq 0, c_i \in K\}$, maka

- Penggunaan bentuk "di mana" maupun "yang mana" harus dihindari, termasuk dalam penjelasan rumus matematika.
- Bahasa Indonesia memiliki kosakata yang cukup untuk menerjemahkan *who, where, which,* atau *whom* tanpa menggunakan kata "di mana".
  - **Salah:** “Kami ke universitas di mana kakak saya mendapatkan penghargaan.”
    **Benar:** “Kami ke universitas tempat kakak saya mendapatkan penghargaan.”
  - **Salah:** “Simposium berikutnya adalah The 2021 IEEE Symposium on Future Telecommunication Technologies (SOFTT) di mana Prof. Gerhard Fettweis dari Jerman sebagai *Technical Program Committee*-nya.”
    **Benar:** “Simposium berikutnya adalah The 2021 IEEE Symposium on Future Telecommunication Technologies (SOFTT) dengan Prof. Gerhard Fettweis dari Jerman sebagai *Technical Program Committee*-nya.”

# Struktur Umum TA, Thesis, Disertasi

- **Abstract**
- **1. Introduction**
- 2. Basic Concept
- 3. Proposed Technique/Materials & Methods
- 4. Performance Evaluations and Analysis
- **5. Conclusions**



# Judul dan Abstrak

- Ingatlah bahwa judul akan dibaca ribuan orang
- Harus dipilih dengan baik dan hati-hati (tidak berlebihan sehingga pembaca tidak kecewa)
- Jangan terlalu panjang.
- Biasanya tidak berupa kalimat

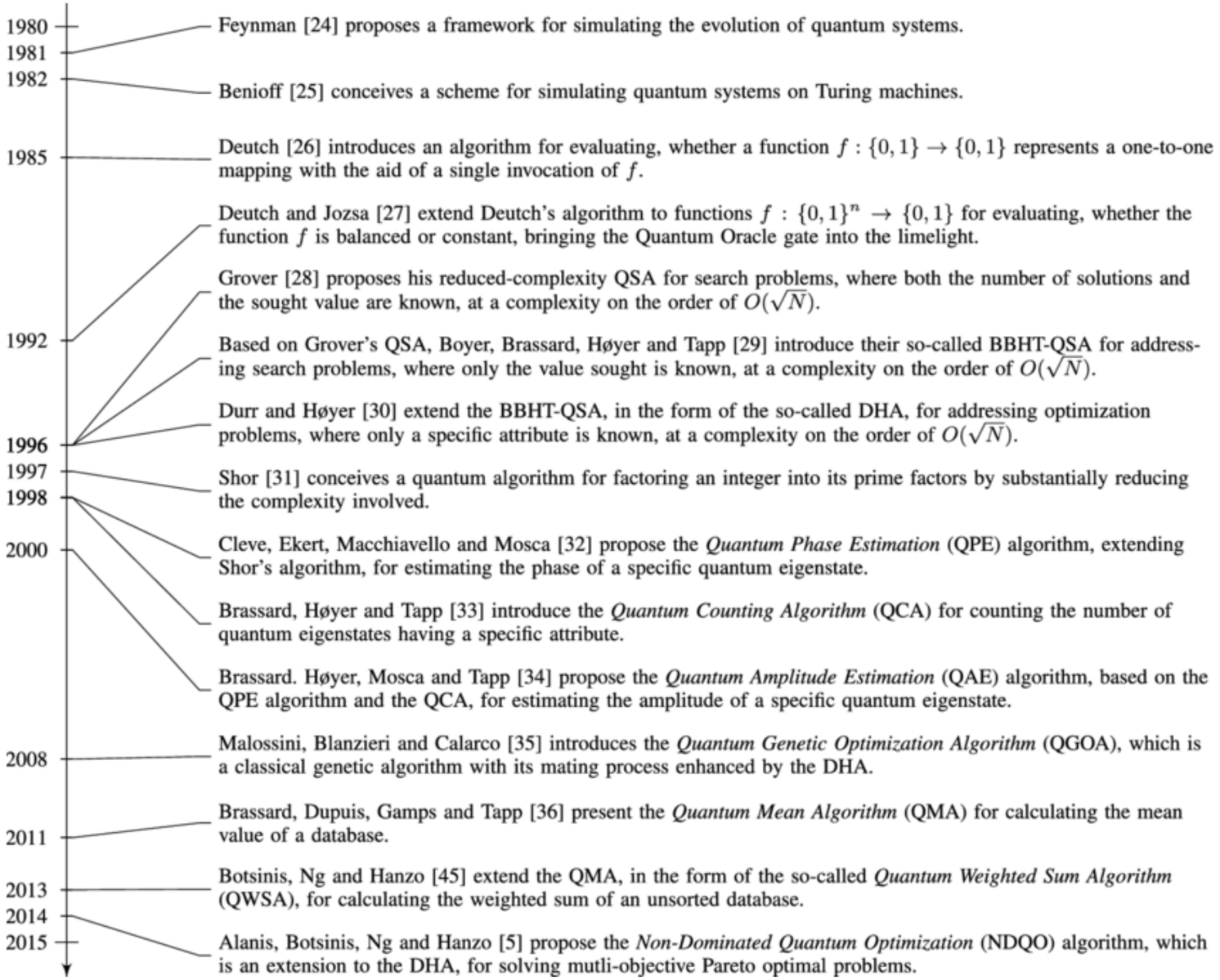
- **Abstrak:**
- The most important part of a technical paper. Essentially the ”selling point” for the paper.
- Should be clear and concise, a single paragraph, typically 200 words.
- The most common mistake: treat the abstract as a brief introduction to the paper.
- Avoid background information; that is for the Introduction.
- In social science or scientific work: may contain the scope, purpose, results, and contents of the work.
- However, in a humanities work: may contain the thesis, background, and conclusion of the larger work.

# No Background in An Abstract

- Please note that the reader is interested in the paper because of its findings, and not because of its background.
- A longer background section means that less space remains for the presentation of the results.
- If you want to write background in the abstract, it should be the shortest part of the abstract (1–2 sentences).
- If background is necessary, it should outline what is not known about the subject and hence what the study intended to examine (or what the paper seeks to present)
- Abstract is a description of your project (what you specifically are doing) and not a description of your topic (whatever youre doing the project on).
- Jangan menuliskan citation (referens) dalam abstract. Singkatan dalam Abstract ditulis lagi dalam ”Introduction”.

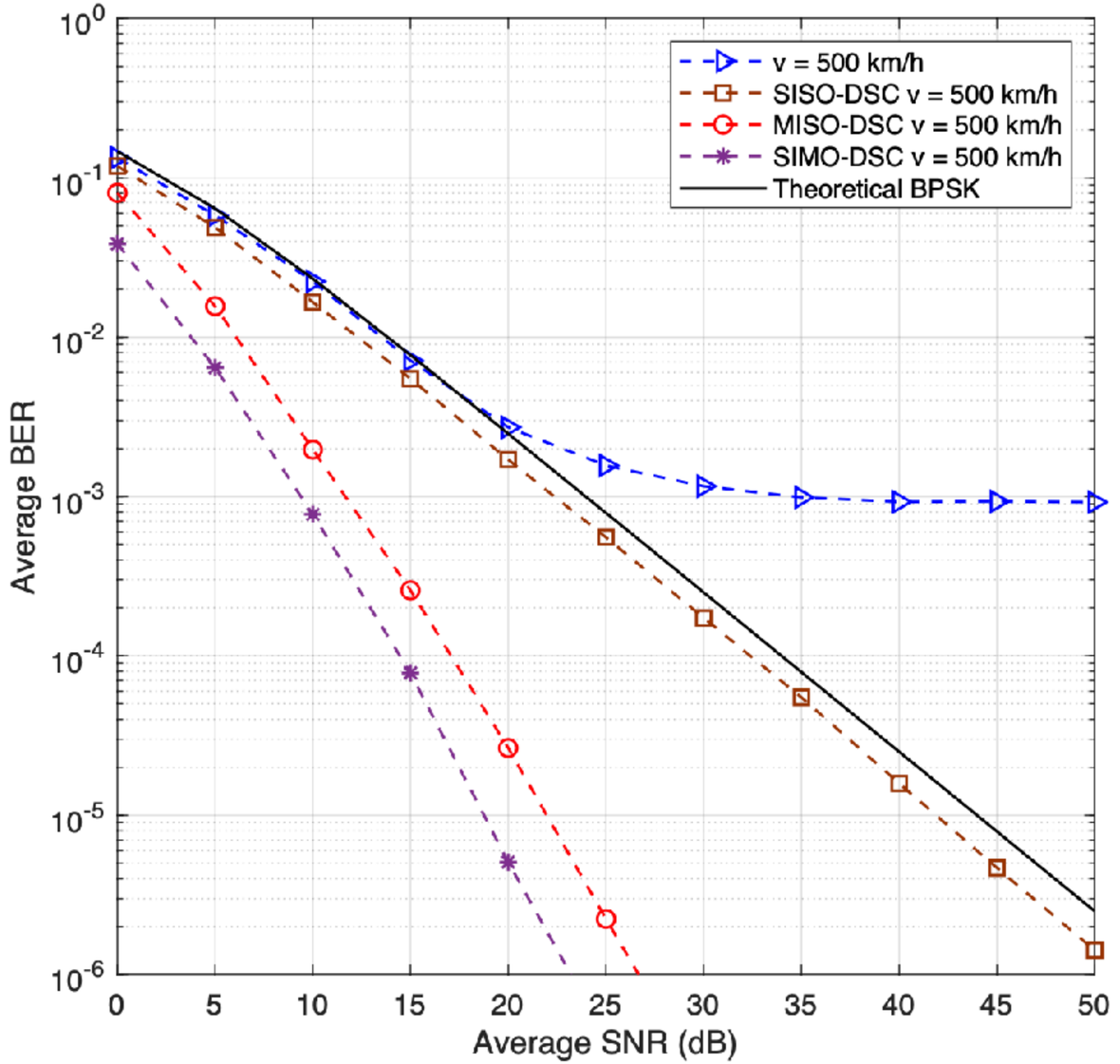
# Bab I: Introduction

- Menjelaskan background problem
- Review literatur atau publikasi yang sudah ada sampai saat itu.
- Alasan memilih atau menggunakan teknik baru
- Jangan salah dalam melakukan citation (penomoran: secara umum yang disebut duluan memiliki nomor kecil)
- Jika ada singkatan, semua didefinisikan di sini
- Bagian ini biasanya yang paling lama menuliskannya karena harus ada literature review.



# Bab IV: Performance Evaluations

- Ini termasuk bagian yang mudah
- Gambar harus sejelas mungkin (tidak kabur)
- Semua simbol dan notasi didefinisikan
- Jangan salah memberi nomor persamaan
- Biasanya jika ada perbandingan dengan teknik lain lebih baik
- Contribution ditunjukkan di sini
- Jaga grammar. Biasanya past tense (karena experiment telah dilakukan)



# Bab V: Conclusion

- Kebanyakan paper direject karena authors tidak berani dan tidak bisa menyimpulkan hasil eksperimennya
- Kontribusi dari paper dinyatakan lagi di sini, yang menunjukkan bahwa paper tersebut sangat penting.

**5. Kesimpulan**

*Paper* ini telah mengusulkan SIMO-DSC untuk meningkatkan kinerja FRMCS kereta cepat Indonesia sampai kecepatan maksimum 1000 km/h. SIMO-DSC yang diusulkan menggunakan dua antena array paralel berjarak 1.6 m di atas gerbong kereta. Evaluasi kinerja FRMCS dilakukan dengan simulasi komputer untuk kinerja BER, FER dan $f_d T_s$ dengan kecepatan 500 km/h dan 1000 km/h. Hasil evaluasi menunjukkan bahwa SIMO-DSC yang diusulkan dapat menghilangkan kerusakan sinyal dan meningkatkan kinerja FRMCS secara signifikan sebesar 3 dB lebih baik dari pada MISO-DSC, dan 23 dB lebih baik dari pada SISO-DSC pada BER $P_b = 10^{-5}$. SIMO-DSC memiliki kinerja lebih baik dari pada MISO-DSC, karena *space diversity* selalu didapatkan, dibandingkan *time diversity* tidak tergantung pada kecepatan. Hasil *paper* ini diharapkan dapat berkontribusi dalam perkembangan kereta cepat di Indonesia.

# “Contoh-contoh Kesalahan Nyata Dalam Penulisan”

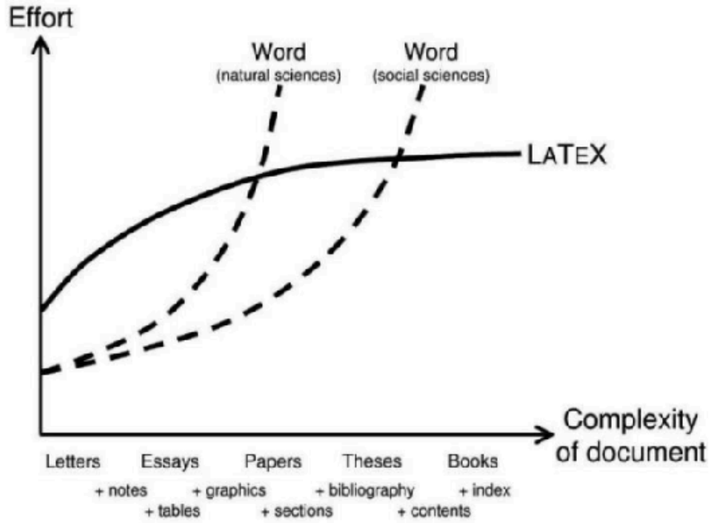
# When We Use Past Tense

**The simulation shows that the effective isotropic radiation power (EIRP) of MFCW is 9 dBm lower than FMCW at a 2-m measurement distance. The result also demonstrates that the proposed MFCW performs well under amplitude and phase noise. The laboratory experiments were conducted by implementing the proposed system using the software-defined radio device. The experiment results also confirm that the proposed MFCW was able to reduce the EIRP and spectrum occupation compared to the FMCW. The MFCW system is then recommended as a radar system in developing a noncontact sensor for respiration monitoring in healthcare.**

Kesalahan:
1. Seharusnya present tense, karena kebenaran berlaku sampai hari ini (kecuali ini benar hanya saat itu, sekarang tidak berlaku lagi)

2. “was able” <—- berbusa-busa, seharusnya “can”

LATIHAN 2




Gambar 2. Perbedaan LaTeX dan Word.

Berdasarkan gambar di atas, maka dibuat paragraf dalam Bahasa Inggris untuk menjelaskannya.

Figure 2 shows a comparison of the efforts of Word and LaTeX in terms of document complexity in the two sciences. In the natural sciences field in Word, the effort put into Letters and Essays is less than LaTeX. The two documents only contain notes and tables, which are relatively easy to make using Word. However, in the field of social sciences in Word, the efforts made on Letters, Essays, Papers, and Theses, are smaller than LaTeX. Graphics and sections in the natural sciences are more complicated than those in the social sciences. The same effort from Word and LaTeX happened to Paper for the natural sciences. The effort to create graphics on Paper is as complex as Word and LaTeX. But for the social sciences, an equivalent effort occurs in the Theses. Making a bibliography is as complicated as the two sciences. For Books documents, the effort for Word is higher than LaTeX in all disciplines. In Books documents, some contents and indexes are less effortful in LaTeX than in Word.

Jangan ada typo di judul dan abstract

Gunakan email resmi untuk kredibilitas institusi

# Digital Phase Shifter for Beam Steering Antenna 2,3 GHz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Paper is written in rush

# Kesalahan Persamaan

diakhiri koma

Data were analyzed using quantitative analysis techniques to get a percentage ideals developed interactive learning media. The percentage is obtained by using the formula proposed by [10]

$$P = \frac{f}{N} x 100\% \qquad (1)$$

where:
P = percentage
f = frequency is obtained in percentage
N = *Number of cases*

Tulis dalam paragraf.

# English rasa Bahasa Indonesia

***Abstract*— At this time, the visible light used by many humans only as lighting only. However, in some studies have been shown that visible light can be used also for other needs that the communication system. On the spot - a particular place, communication cannot be done easily using a technology that uses electromagnetic waves, for example in water, tunnel or in a place that cannot receive electromagnetic waves (blank spot). In these places, conversation (speech) between people simultaneously (full duplex) using cellular technology cannot do. Therefore, the use of technology Visible Light Communication (VLC) will be a solution that can replace the communication system in place.Visible Light Communication (VLC) using white Light Emitting Diode (LED) is a promising technology for next generation communication for short range, high speed wireless data transmission. Performance analysis is done with respect to color filter, photo sensitivity of photodiode at the receiver and the increase in distance between the transmitter and receiver. In this paper inexpensive transmitter and receiver of VLC system is designed and its performance is evaluated. Experimental results show that the data transmission distance achieved up to 6.3 m.**

Delete referensi

Bagi menjadi dua kalimat.

***Abstract*—In this paper, we propose a method to separate diffuse and specular reflections from a single image based on sparse representation. The proposed method relax the recent sparse-based technique [15] for removing specular highlights that require multiple input images i.e. 37 images. In addition, we also propose a new variant of specular-free image based on XYZ color space. Instead of using multiple input images, we use only an image and then generate multiple specular-free images. We formulate the specular removal problem as an unconstrained convex problem of recovering a sparse signal and an outlier signal. The diffuse component is estimated from the dot product between the dictionary and sparse signal while the specular image is obtained from the outlier. The dictionary are derived from the specular-free images while the estimation of diffuse and specular images were performed using alternating direction method of multiplier. The experimental results showed that this method outperformed the accuracy of standard specular removal methods [5], [6].**

Figs. 7 and 8

Jangan ada kontraksi

The simulation for fig.7 and fig. 8 basically have the same parameter with the previous simulations. But for this case, the velocity of the user/vehicle, such as train, increased to 350 kmph. At a glance, we can see there's a decline of performances on fig.7 and fig.8 compared with fig.6 and fig.7. It's happens because of its velocity difference. Velocity of the user would make a doppler shift, frequency or wave changes because of transmitter or receiver movement, that would effect the transmission of the system. Higher velocity would give great effect to the degradation of BER. By the graph 7 and graph 8, we can see that at SNR 6 dB and elevation angle of $30^{o}$, the system has BER for $7.1\ x10^{-2}$ (without LS estimation) and by giving the system a LS estimation, we get a better BER $1.8\ x10^{-3}$.

the inputs rod surfaces is the second result of an incident pulse strain $\varepsilon_i$ through x positifs area and reverse stress pulse $\varepsilon_r$ through x negatifs area. So that:

$$u_1 = c_0 \int_0^t \varepsilon_i dt' + (-c_0) \int_0^t \varepsilon_r dt' = c_0 \int_0^t (\varepsilon_i - \varepsilon_r) dt' \quad (2)$$

In the same way, the displacement $u_2$ on the surface of the rods incident can be obtained from the incident pulses transmitted strain $\varepsilon_t$ as follows:

$$u_2 = c_0 \int_0^t \varepsilon_t dt' \quad (3)$$

Thus, the nominal stress in the specimen is;

$$\varepsilon_s = \frac{u_1 - u_2}{l_0} = \frac{c_0}{l_0} \int_0^t (\varepsilon_i - \varepsilon_r - \varepsilon_t) dt' \quad (4)$$

where $l_0$ is initial length of the specimen. The above equation can be simplified further if we assume that the voltage passing through the specimen is constant. With this assumption:

$$\varepsilon_r = \varepsilon_t - \varepsilon_i \quad (5)$$

hapus follows:

Akhiri titik, karena berakhir fi sini

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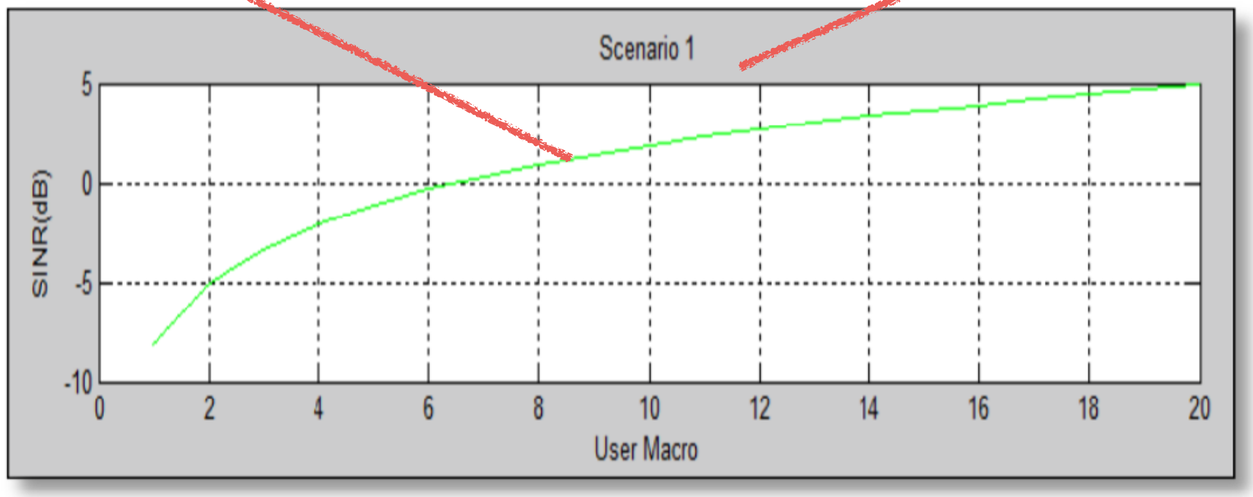


Figure 2. SINR without PC, Scenario 1

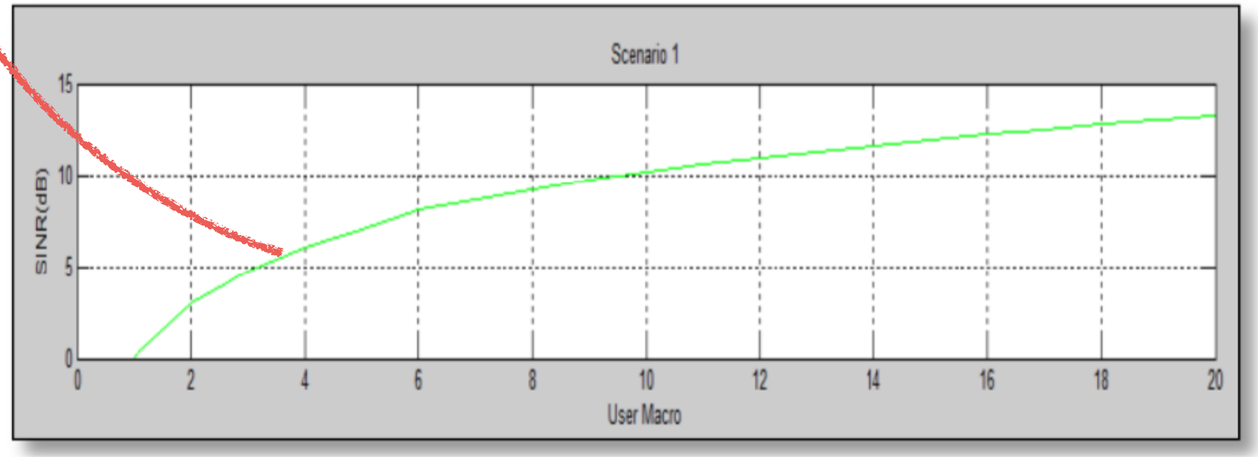


Figure 3. SINR with PC, Scenario 1

Gambar terdistorsi

Paper terburu-buru dan tidak dibaca ulang.

C) Power Control Calculation

Method of power control applied to HUE and MUE is the source penginterferensi. Power control works by minimizing the transmit power of user-friendly penginterferensi. Power control method used is based on the formulation of standards 3GPP Release 10 with boundaries without implementing user scheduling techniques. Power control is written equation (1).

Antenna array in this study is a linear one-dimensional antenna array with N elements placement with one another in a straight line. At each branch antenna array is connected to phase shifter that is paired series to control signal phase. On the far field measurements, calculated radiation in the form of phasor electric field intensity as figure 1 below.

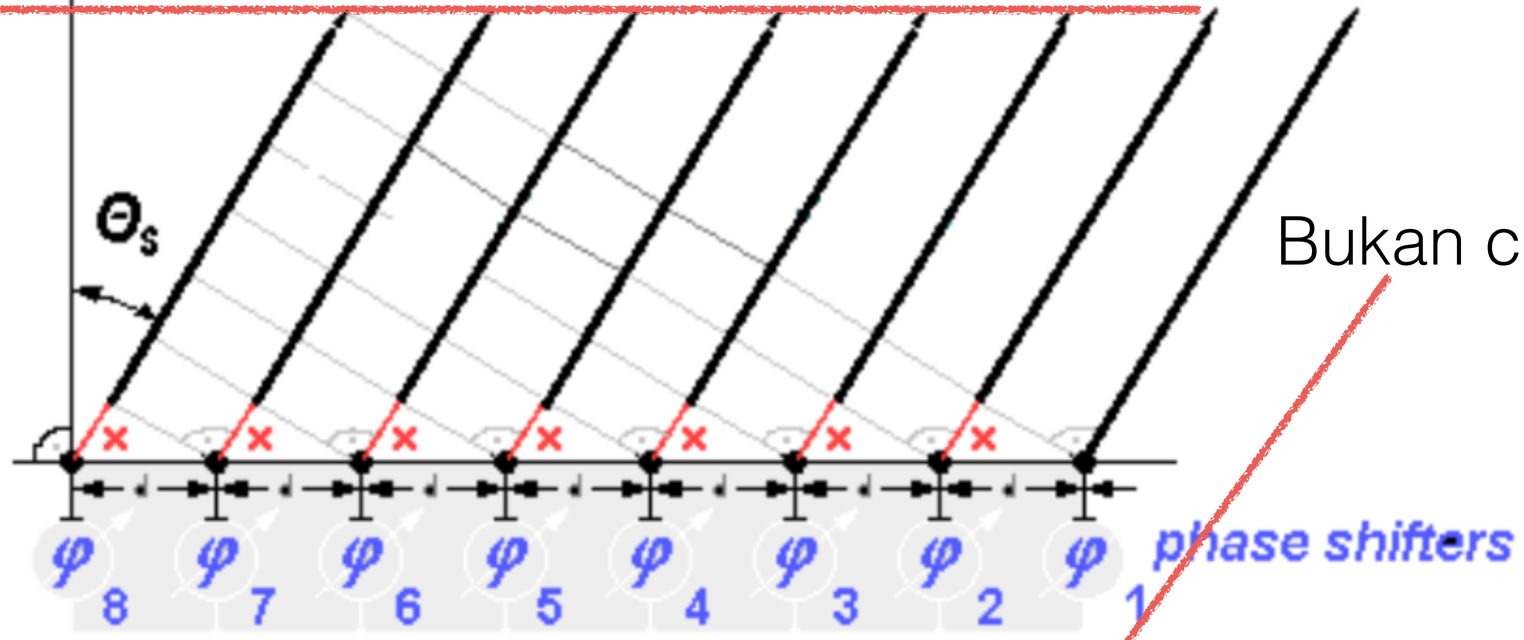


**Fig 1** Antena Susun Isotropis[3]

Bukan citation

Bahasa Indonesia

Hindari menulis seperti ini

## V. Conclusion

By this simulation, we investigate pilot based Least square estimation on HAPS channel. We compared the system between SISO and MIMO STBC 2x2 and speed of the user took into account. With the same SNR, MIMO STCB have better BER. Increasing the velocity of the user (60 kmph to 350 kmph ) proves effect the performances of the system as well. It's indicated by the decrease of Bit error rate (BER) and the performance gap of each elevation angles. While using least square estimation channel also effects the realibility of the system. The system using channel estimation have better BER compared to the system without channel estimation at the same SNR and elevation angles with improvement of SNR about 5 dB.

jangan ada kontraksi

Satu kalimat jangan menjadi satu paragraf

VLC system consists of transmitter which uses white LEDs as a light source, free space (air) as the transmission medium and photodiode at the receivers.

VLC communication has the advantages of bandwidth, low power consumption, visibility, free from Electro Magnetic Interference and radiation hazards. Figure-1 shows the block diagram of the proposed VLC system.

Jangan pakai excel. Gunakan software yang lebih baik, misalnya Matlab atau lainnya.

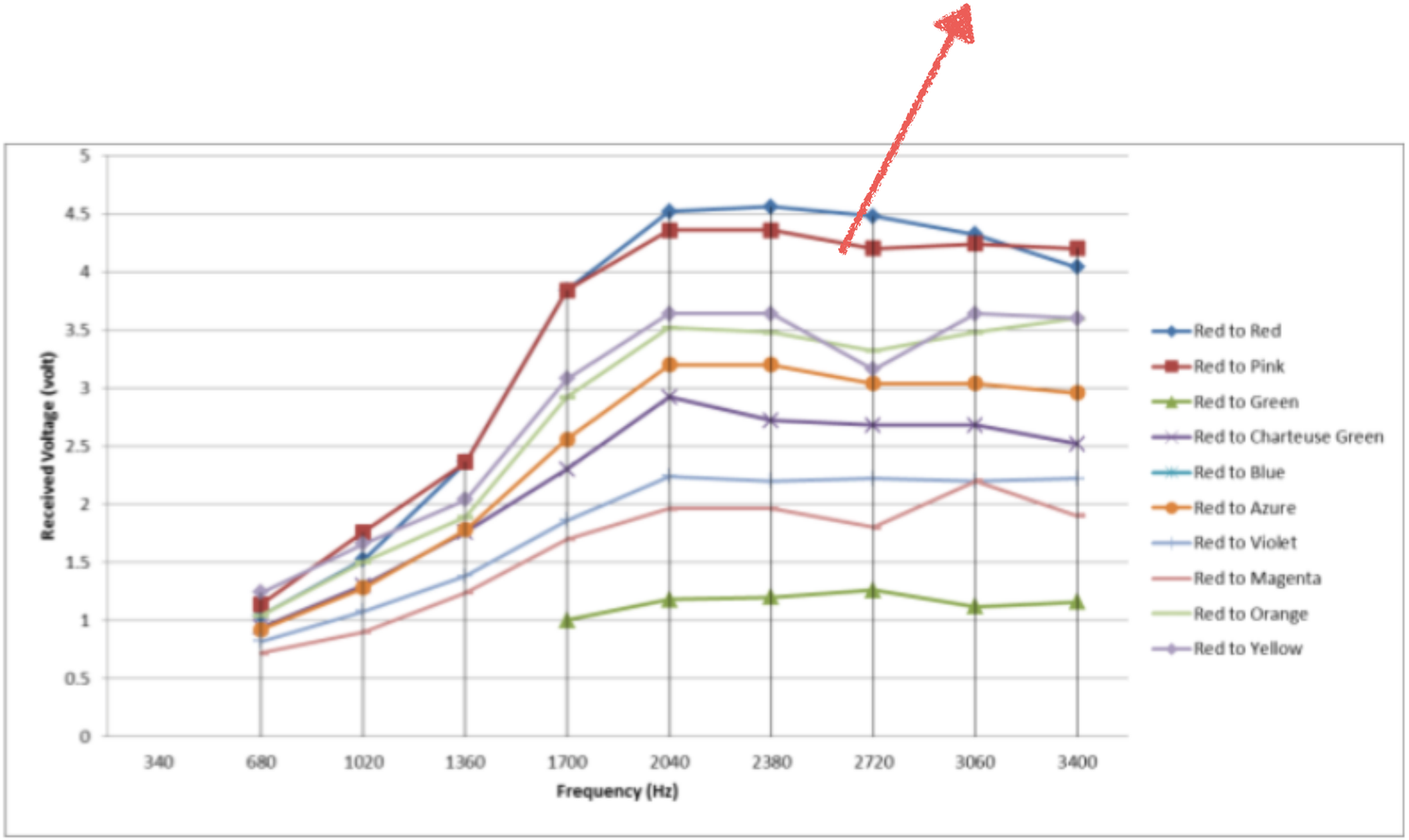


Fig. 13. Graph output voltage system with a red filter on the transmitter

# Sphere Based MIMO Decoder for High Throughput WLAN IEEE802.11n

Delete colon

Kurang tanda koma.

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## III. SPHERE BASED MIMO DECODER

After decomposing the channel matrix **H** into **Q** and **R** matrices using QR decomposition such that **H** = **QR** [7, 8], equation (6) can be stated as:

$$\hat{\mathbf{x}} = \arg\min \left\| \hat{\mathbf{y}} - \mathbf{R}\mathbf{x} \right\|^2 \qquad (8)$$

where $\hat{\mathbf{y}} = \mathbf{Q}^{\mathrm{H}}\mathbf{y}$. **Q** is a unitary matrix which size is $M$ x $N$ and $\mathbf{Q}\mathbf{Q}^{\mathrm{H}} = \mathbf{I}$, while **R** is an upper triangular matrix which size is $N$ x $N$.

## C. *Maximum Likelihood based MIMO decoder*

Instead of linear methods, MLD based MIMO decoder measures the distance of the received signal to all possible symbol candidates. It then takes the closest one to find the estimated symbol as:

$$\hat{\mathbf{x}} = \arg\min \left\| \mathbf{y} - \mathbf{H}\mathbf{x} \right\|^2 \quad (6)$$

Tidak perlu ":"

Complexity of MLD is determined as:

$$O = L^M \quad (7)$$

perlu tanda koma

where $M$ is number of receive antenna and $L$ is the modulation order, i.e $L$=1 for BPSK, $L$ =2 for QPSK, $L$ =4 for 16-QAM, $L$ =6 for 64-QAM, and $L$=8 for 256-QAM.

Harusnya di tengah

s

TABLE I. SIMULATION PARAMETERS

| Parameters | Value | | |
|---|---|---|---|
| Antenna configuration | 2 x 2 | | |
| Bandwidth | 40 MHz | | |
| Number of Data Subcarrier | 108 | | |
| Subcarrier modulation | 64-QAM | | |
| Modulation Coding Scheme | 13 | 14 | 15 |
| Coding rate | 2/3 | 3/4 | 5/6 |
| Data rate (Mbps) | 216 | 243 | 270 |
| MIMO decoder method | ZF, MMSE, MLD, Sphere | | |
| Number of packet | 1000 packets | | |
| Number of data per packet | 1000 octets | | |
| Channel Model | B of IEEE TGn | | |

Harus seragam

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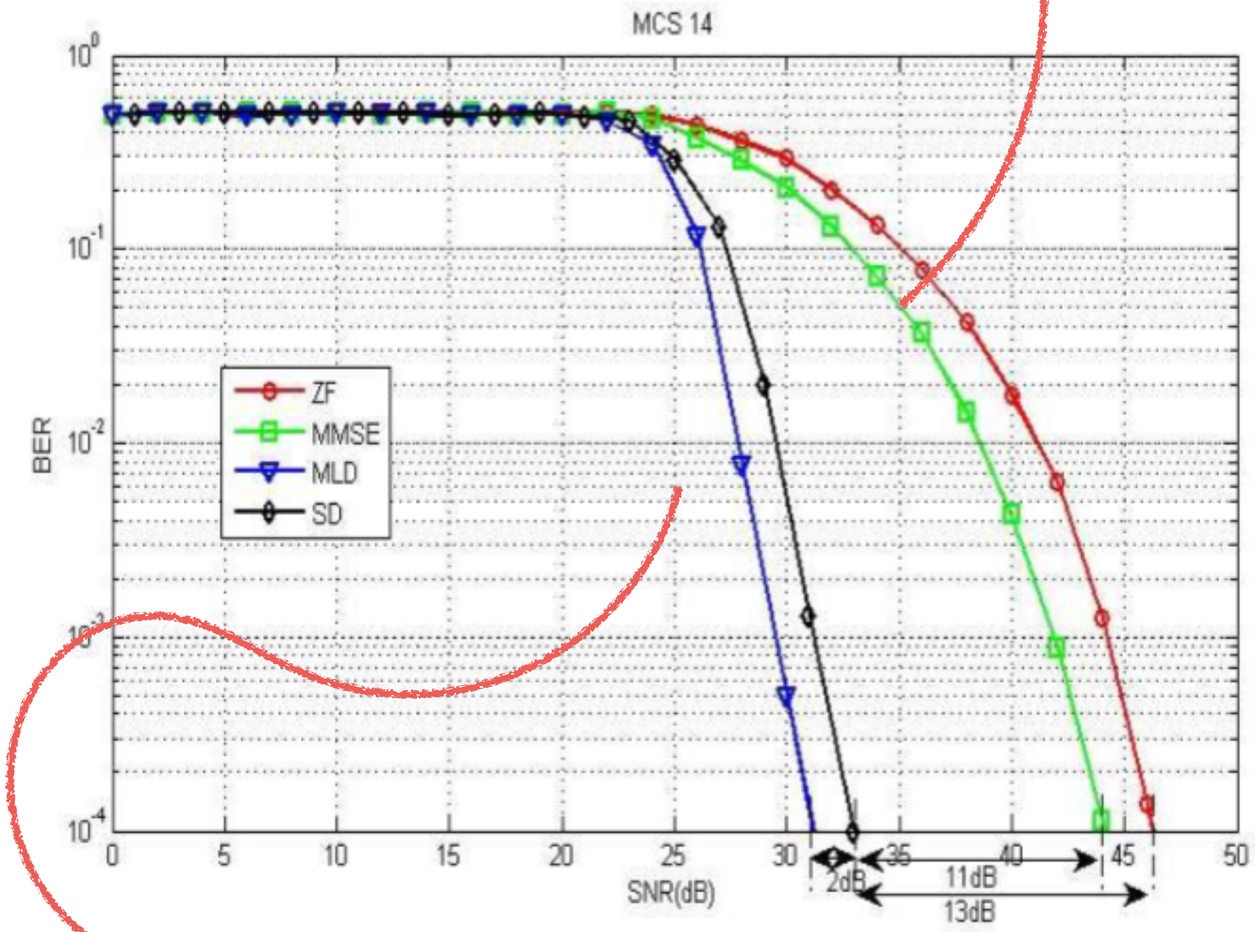



Gambar tidak proporsional, kabur

Fig. 2. Performance comparison of ZF, MMSE, MLD, and SD for MCS 14 of WLAN 802.11n 40MHz.

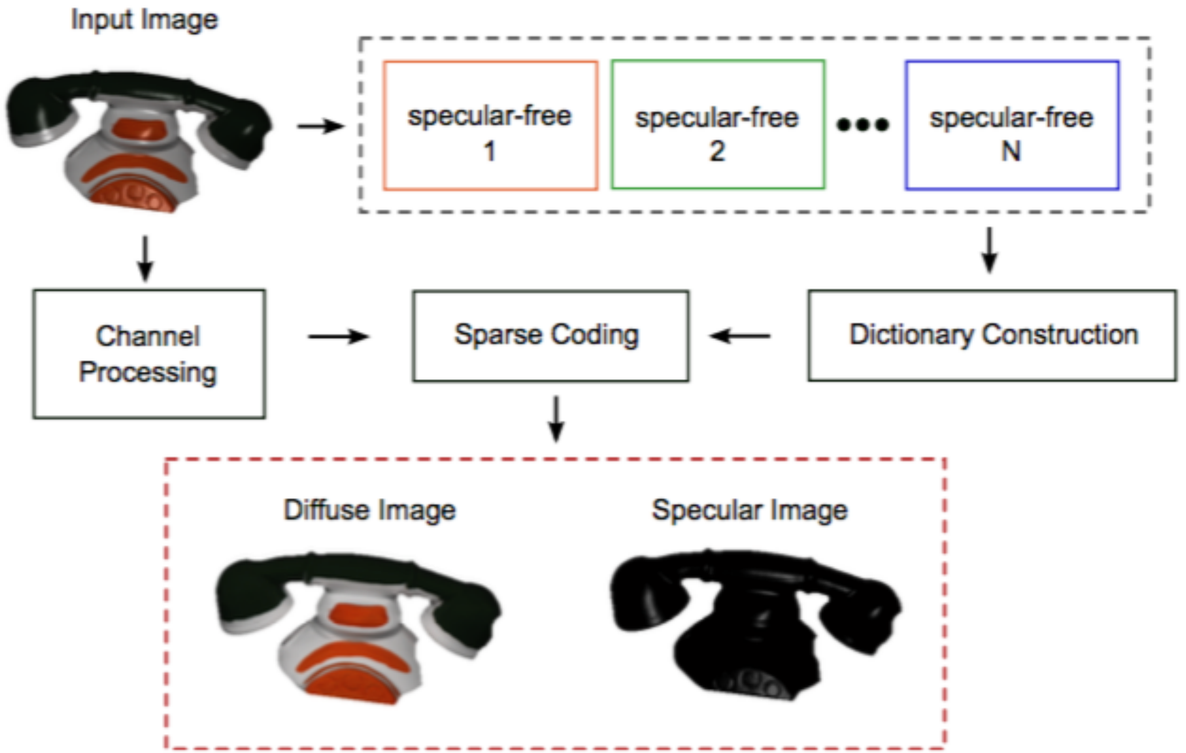



Fig. 1. The Extraction process of diffuse and specular characteristics using SC method. Initially, the input image is processed using specular-free methods. The output is the $n$ specular-free images. These images then are used to reconstruct a dictionary. From the dictionary, the SC method generates the diffuse and specular images.

Caption bukan tempat menjelaskan.

koma

as

which is just a single input image. This signal is described ~~by~~ the ~~following~~ equation:

kurang ke kiri

$$\boldsymbol{y} = D\alpha + \boldsymbol{y^s} \tag{3}$$

where $D\alpha$ encode the diffuse image $\boldsymbol{y^d}$. The dictionary $D$ is constructed from specular free images that are extracted from the input image. the $\boldsymbol{y^s}$ is the final estimation of the specular image. The main objective of the proposed method is to obtain the diffuse image from the sparse representation and to separate the specular signal as a noise signal.

unclear.

## V. Conclusion and Discussion

This study has proposed a specular removal method based on specular-free images based on sparse coding (SC). A new variant of the specular-free image was proposed to improve the accuracy of this method. The dictionary is constructed from the generated specular-free images from a single image input using singular value decomposition. The experimental results have shown that this method was able to reduce the number of images required for sparse coding method from 37 images [15] to only an image. The performance of the proposed SR method was evaluated quantitatively based on the accuracy and computational efficiency. The proposed method outperformed the accuracy of the standard specular removal methods [5], [6].

Jangan ada sitasi

weak

put in “Introduction”.

***Abstract*—The number of mobile users is increasing rapidly, 3GPP initiated a new technology 4G Long Term Evolution (LTE). LTE is an enabling technology as a solution to the problem of network capacity and quality in areas that have a high demand like Sleman. The quality of LTE networks are supported by backbone and distribution network. This paper describes the designing of fiber optic network as the LTE backbone network in Sleman. The backbone network requires G-652 optical cable along 85 km with a ring topology and WDM-STM64 technology. The distribution network uses GPON technology and the type of G984 optical cable along 61.35 km. The minimum of power received at the end-point in the optisystem simulation is -25 dB and -26 dB through the calculation, this value is good because it is still above the minimum of power received (Receiver Sensitivity) -28 dBm which refers to the standard parameters of G.984.2. The average value of rise time is 69 ps, this value is still below the maximum allowable value of rise time 70 ps. Average BER of backbone link is $5x10^{-4}$.**

Terlalu pendek
grammar keliru

## C. *Link Budget and Rise Time Planning*

Detail of link power budget describe in figure 2.

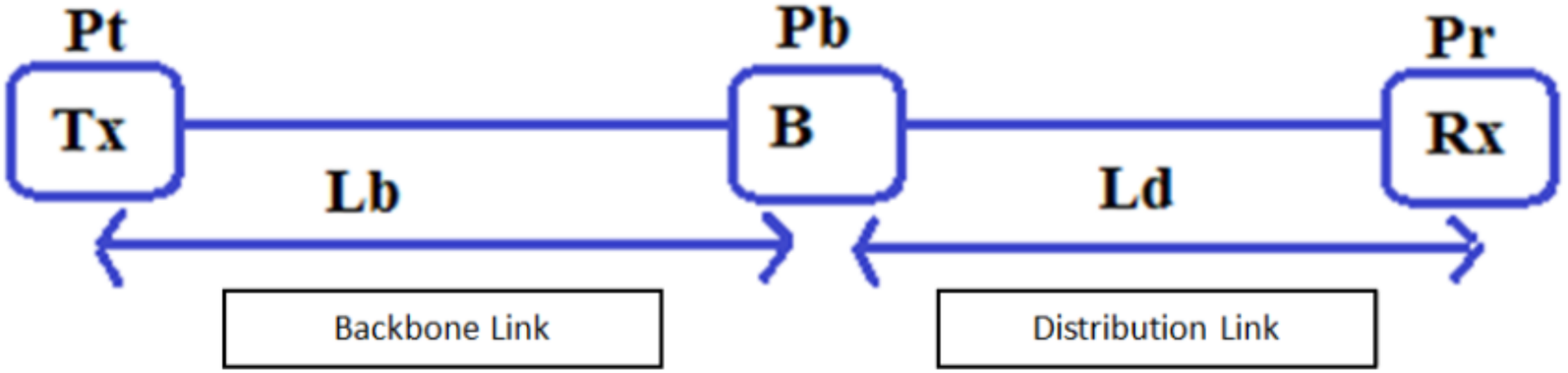



Figure 2. Illustration of link budget on backbone and distribution network

careless

Loss on backbone link (based on network palnning) is calculated ~~using formula 1.~~ as

$$Lb = (\alpha_c \times Nc) + (\alpha_f \times L) + (\alpha_s \times Ns) + Ms \qquad (1)$$

$$= (0.3\times14)+(0.3\times84.9)+(0.05\times46)+3$$

$$= (4.2)+(25.47)+(2.3)+3$$

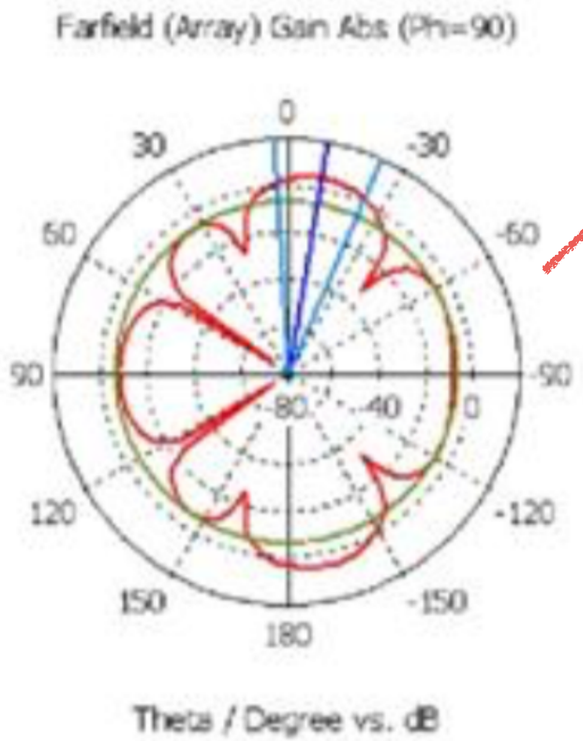
$$= 34.97 \text{ dB}$$

seharusnya di sini.

period

low quality

ceroboh




Pergeseran fasa simulasi (derajat)

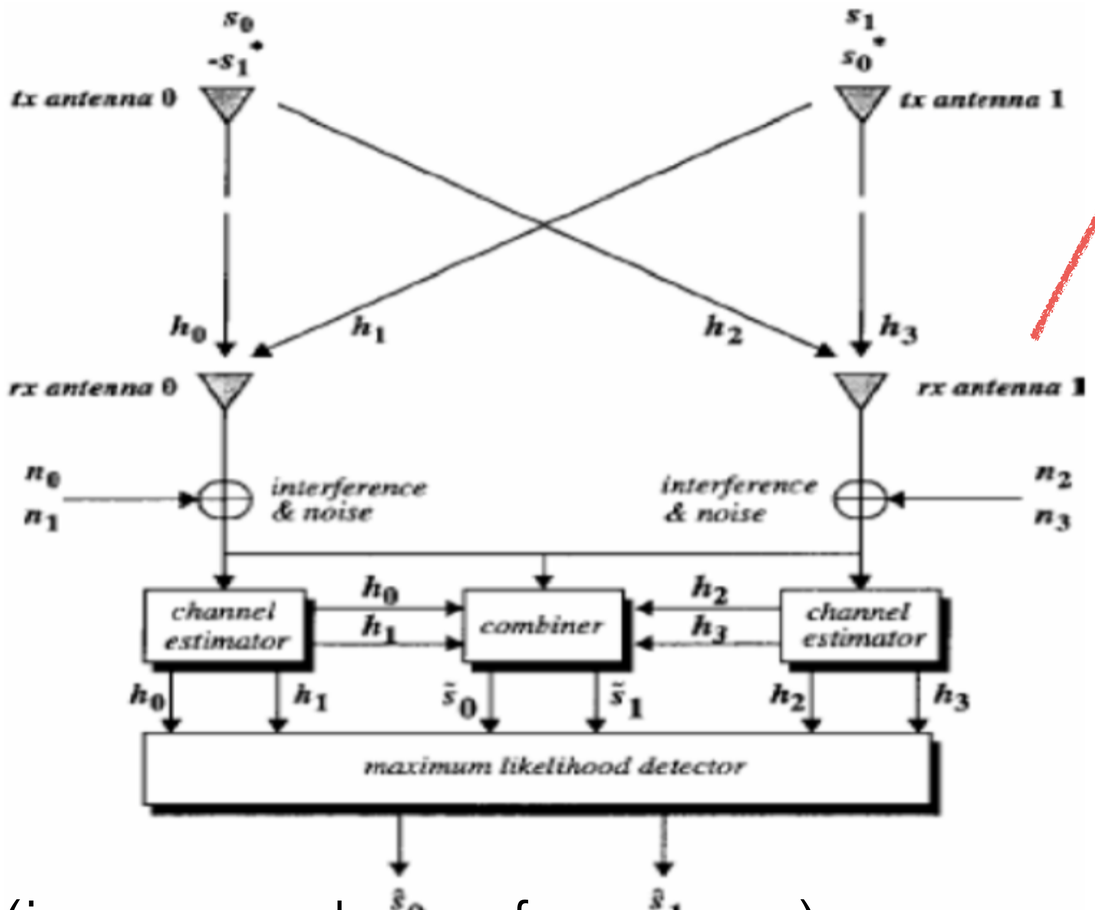
0
10
20

**Fig 3** Simulation of Radiation Pattern Slider phase circuit in the initial position the main lobe $10^0$

The simulation results are showed fig 3 is shifted as far as $10^0$ from early position, this is matched with the calculation of phase shifter beam steering

Abbreviations and Acronyms

Jangan mengcopy tanpa ijin




Ini gambar terkenal MIMO System

(image: redrawn from ……)

Figure 3. MIMO STBC Alamouti 2x2 scheme [3]

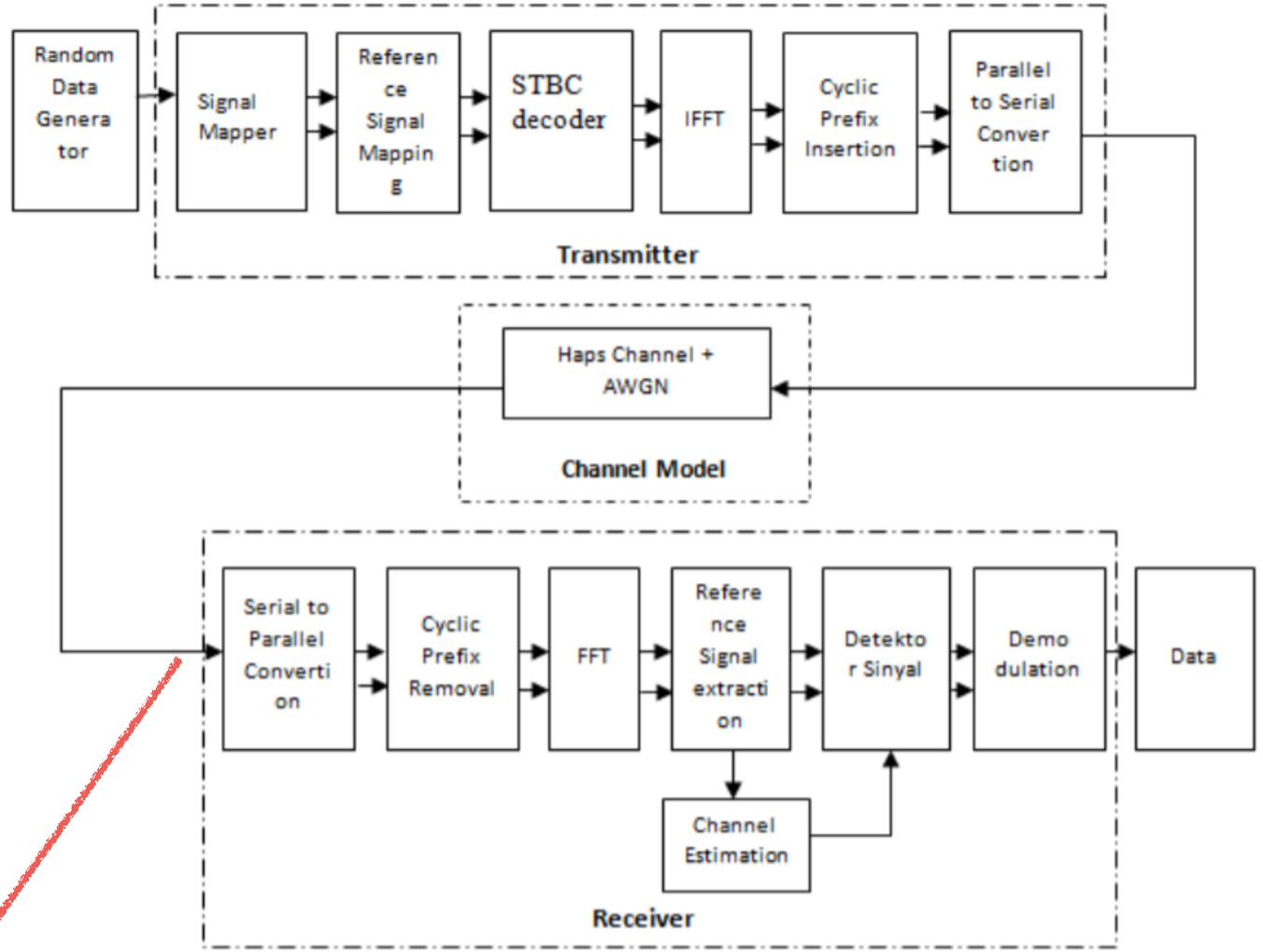



Figure 4. Block Diagram Simulation

Low quality

Caption yang tidak bermakna

## IV. RESULT & PERFORMANCE ANALYSIS

In this study, the least square estimation in HAPs generated by modified Rician channel base on 9 elevation angles K-factor as has been used in [3]. LS estimation employed to LTE reference signal accordance to pattern that shown by figures 5.

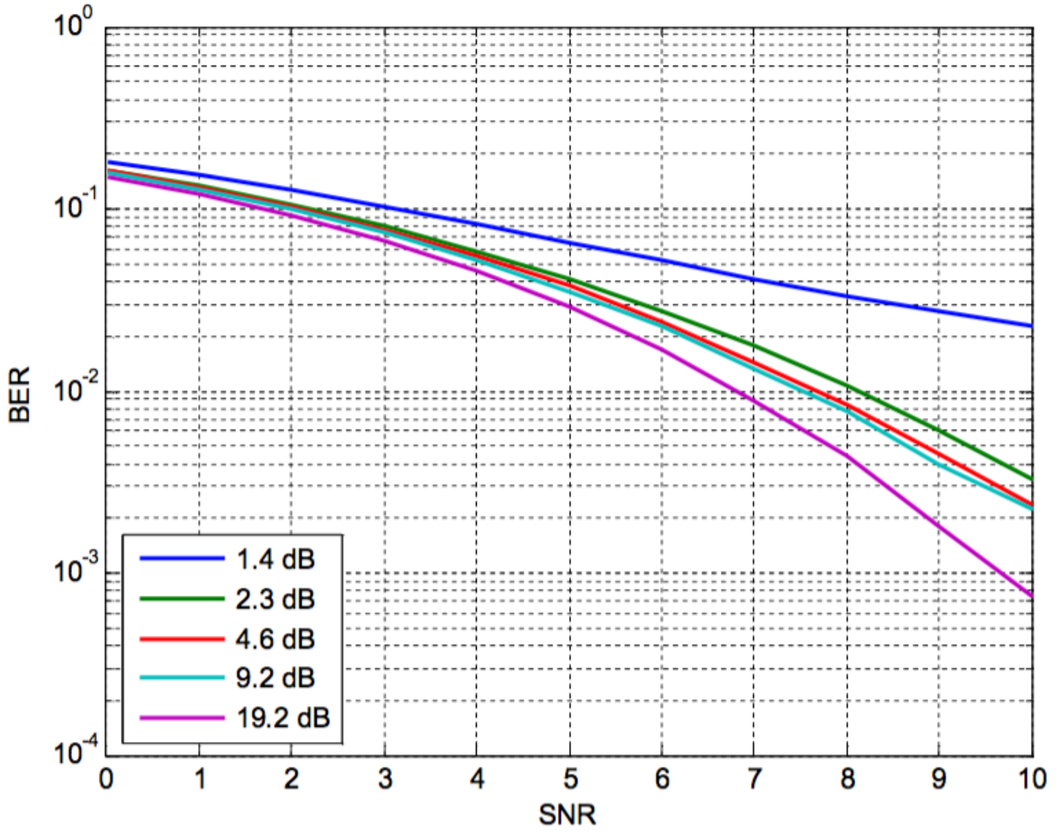



Figure 5. BER to SNR SISO with LS

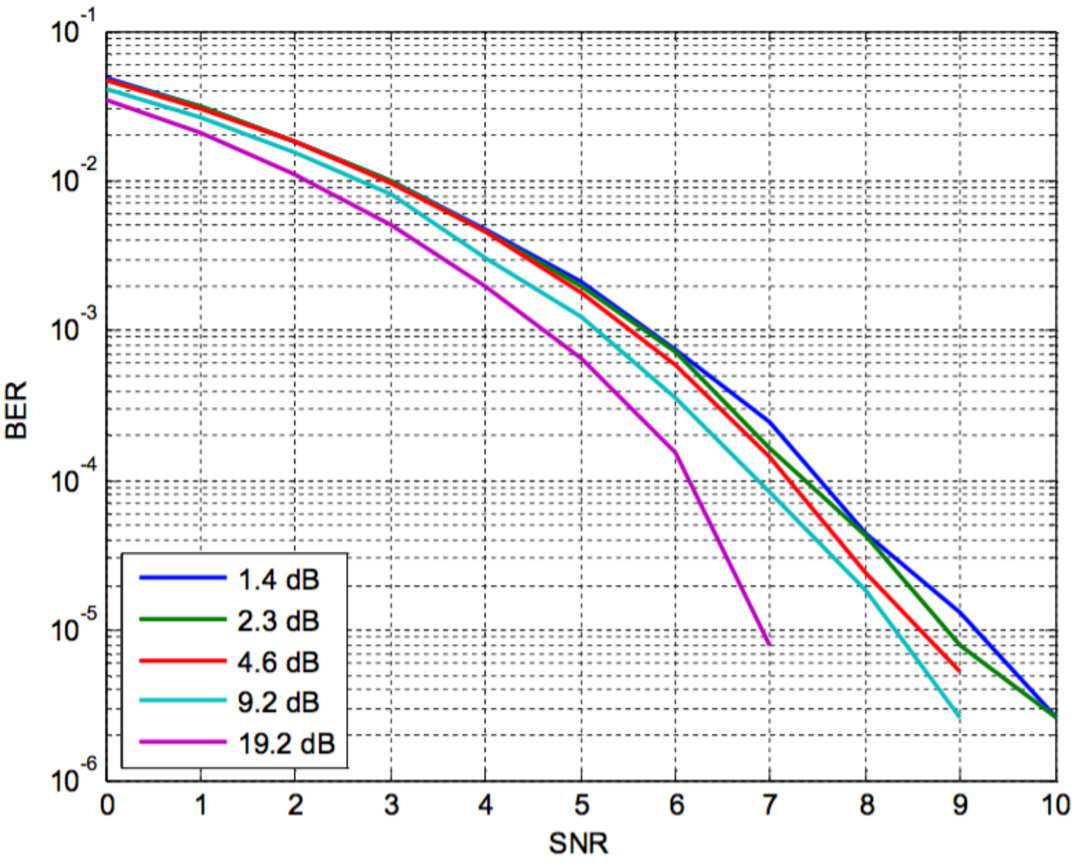



Figure 7. BER to SNR MIMO STBC 2x2 with LS

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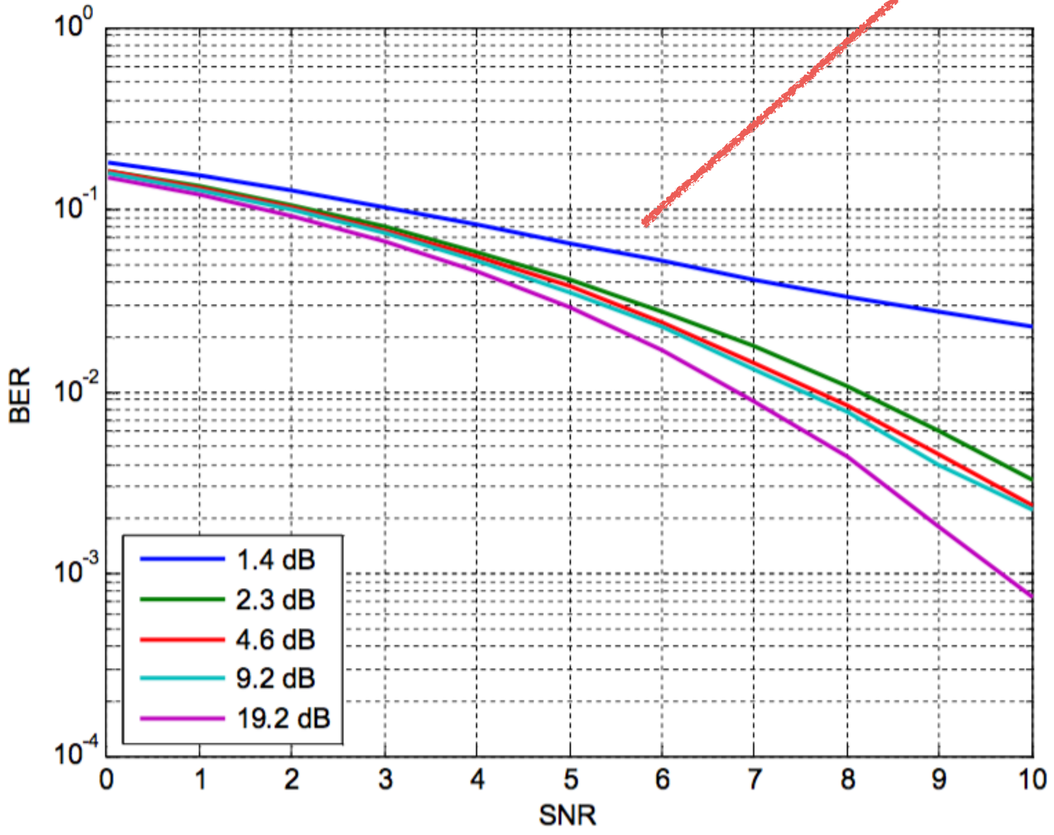


Figure 5. BER to SNR SISO with LS

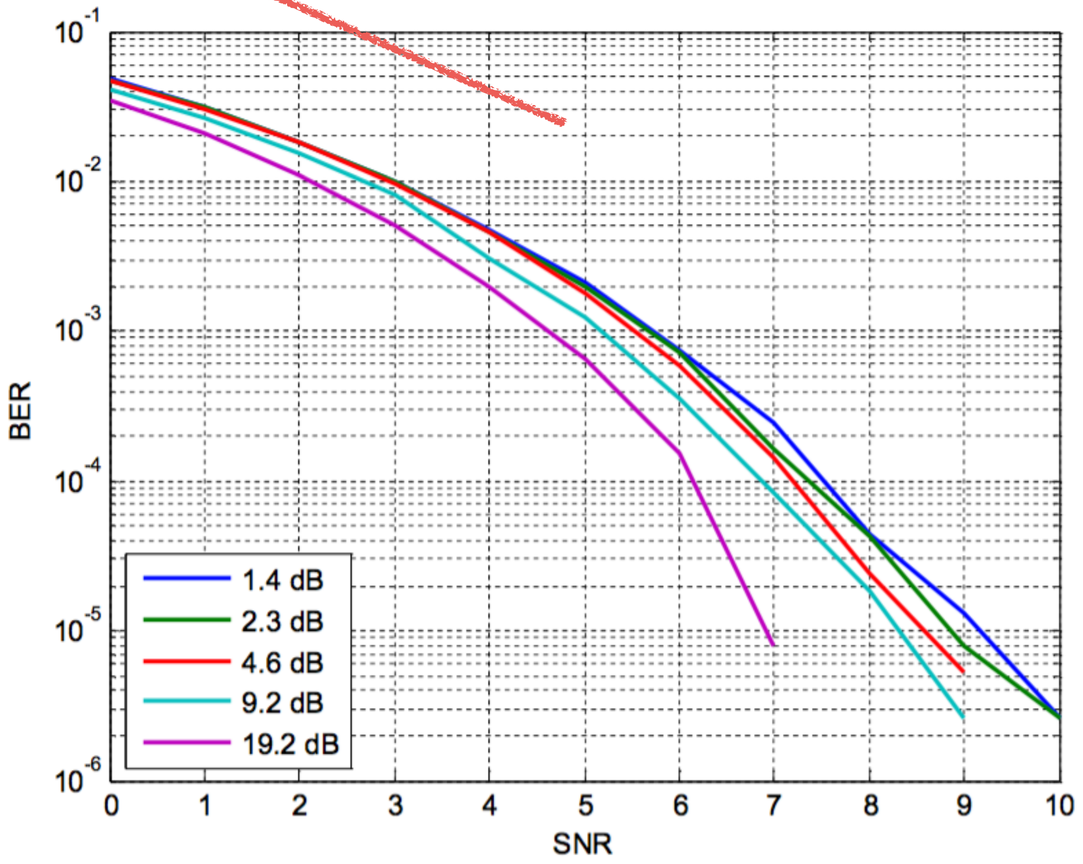


Figure 7. BER to SNR MIMO STBC 2x2 with LS

# Bentuk paragraf, dan review sedikit tujuannya

## 5. CONCLUSION

1. Feasibility (relevance) of media interactive learning materials are developed with competencies in electrical installation engineering courses have not been fully fit to use. Still need revisions or improvements to be achieved competency in electrical installation engineering courses can be fulfilled.
2. Guide examination by the Expert Team (Guided Expert Reviews) as the tools and techniques of data collection through a questionnaire are used in this study is able to get information about the perspective of the experts who are outside the system focused on the needs assessment of the feasibility of this interactive learning media.
3. The use of scenarios as tools and techniques of decision-making (decision making) are very useful for providing contextual exploration of the potential strengths and weaknesses of various combinations of interventions to increase the performance of a learning medium.

# Bentuk paragraf, dan review sedikit tujuannya

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# Measuring the Dynamic Impact of Basic Product Design of Car RIM

## MEASUREMENT OF THE DYNAMIC IMPACT AND SIMULATION MODELING FOR BASIC PRODUCT DESIGN OF CAR RIM

[redacted]
Student of Technology and Vocational Education, Padang State University, Indonesia

Tidak perlu ditulis

**Abstrak**: Collision rim car at high speeds can result in failure, on the surface of the rim which has experienced a failure indicates the solidification structure, it is assumed to occur due to the fluctuating loading. Techniques Split Hopkinson Pressure Bar (SHPB) is a measurement method of impact strength of the most popular today. Modeling simulations using MSC-NASTRAN can predict the failure to find out the stress concentration of failure criterion method. The ability of design on equipment engineering and machine are a requirement of competencies that expected by users of vocational education graduates. From the research results can be informed that during the acceleration of the pace of the ongoing strain on impact test, have an impact like an increase in ultimate strength, simulated rim without load and have been given the burden it is known that the maximum voltage in the critical region. Stress concentration occurs in the trunk area rim and damage/failure rim of car is more dominated by compressive stress but did not rule out the possibility that the dynamic tensile stress very influential to failure of structural components of car rims. Re-design dimensions and geometric of the car rim which is adapted to the mechanical properties of materials can reduce the impact of dynamic impact loads experienced by structural component. Designing alternative machine or modified, develop the design, such as setting dimensions, shapes based on mathematical equations is more effective to be done by using the software of Solid Work and MSC-NASTRAN.

Key words: Dynamic impact, Modeling simulation, SHPB, Solid Work, MSC-NASTRAN.

Grammar perlu diimprove, tujuan tidak jelas

Tidak penting

Terlalu umum

# DEVELOPMENT OF INTERACTIVE LEARNING MEDIA IN ELECTRICAL INSTALLATION ENGINEERING


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Sama
tidak perlu nomor berbeda


**Abstract:** This study is a development research or Research and Development (R & D), also known as research-based development are oriented a product. The research and development are a research method that is sufficiently powerful to improve practice. It discusses the appropriateness (relevance) of interactive learning that developed with materials competencies that will be achieved in the course of electrical installation engineering. The technique used to obtain data about the appropriateness (relevance) of the learning media is a Guided Expert Reviews. While on the decision making, as a recommendation from the study after the data analysis using the technique of scenarios. Results of the data analysis of the feasibility assessment by 2 experts materials obtained an average appropriateness of 3,18, which indicates that the educational criteria interactive learning is developed enough to be in the category of assessment. While the results of the data analysis of the feasibility assessment by 2 expert media are obtained an average appropriateness of 3,29, which shows that the interface criteria of interactive learning is also within the category enough assessment. It can be concluded that the media developed interactive learning still needs improvement before it is used as a medium of learning in the practice of electrical installation engineering. Thus prepared an action scenario that will be recommended based on an assessment given by experts to the media, both the educational criteria as well as an assessment of the display media (cosmetic) that the competencies will be achieved in electrical installation engineering can be met.



*Keywords: R & D, appropriateness analysis, Guided Expert Reviews, interactive learning media*


Tiba-tiba results

Hanya subjek, no predicate

# STUDI PEMETAAN SPEKTRUM KEAHLIAN LULUSAN PROGRAM STUDI PENDIDIKAN TEKNIK ELEKTRO UNIVERSITAS NEGERI PADANG

Hapus

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*Abstrak*— Penelitian ini membahas tentang pemetaan spektrum keahlian lulusan pendidikan teknik elektro. Tujuan penelitian yaitu memetakan mata kuliah berdasarkan Spektrum Keahlian Lulusan Program Studi Pendidikan Teknik Elektro, *Expected Learning Outcomes* (ELO) dan *Course Learning Outcomes* (CLO) agar menghasilkan lulusan yang sesuai dengan profil lulusan di program studi Pendidikan Teknik Elektro FT UNP. Jenis penelitian yang dilakukan adalah penelitian deskriptif dan pendekatan yang digunakan kualitatif. Penelitian dilakukan di Fakultas Teknik UniversitasNegeri Padang. Instrumen penelitian yaitu berupa dokumen seperti semua mata kuliah, sinopsis dari mata kuliah dan silabus yang ada pada Pendidikan Teknik Elektro Universitas Negeri Padang. Teknik pengumpulan data yang dilakukan berupa wawancara dan dokumentasi. Dari penelitian yang dilakukan maka akan terbentuk pemetaan mata kuliah Pendidikan Teknik Elektro Universitas Negeri Padang. Dari Struktur Mata kuliah, mata kuliah dasar yang harus diambil oleh mahasiswa Pendidikan Teknik Elektro UNP pada semester 1 sebanyak 22 (SKS), semester 2 sebanyak 22 (SKS), semester 3 sebanyak 22 (SKS), semester 4 sebanyak 19 (SKS), semester 5 sebanyak 22 (SKS), semester 6 sebanyak 20 (SKS), semester 7 sebanyak 8 (SKS) dan pada semester 8 sebanyak 10 (SKS) mata kuliah akhiryang harus dipenuhi. Dengan demikian jumlah Satuan Kredit Semester yang harus dipenuhi mahasiswa Pendidikan Teknik Elektro Universitas Negeri Padang sebanyak 145 SKS.

Subjek mana?

S kapital

Hasil tidak ada

***Abstract*--There is a digital divide between urban and rural areas in Indonesia. Information and communication Technology (ICT) penetration in the rural area encounters many obstacles so the empowerment of ICT in rural areas requires different strategies from empowerment in urban areas. There are at least three factors causing the digital divide in rural areas: technological factors (infrastructure and quality of ICT services), the level of community ICT literacy, and the government's commitment to make applicable policies for rural areas on Infrastructure and literacy building. The purpose of this study is to propose a strategy on ICT development for Papua. The qualitative approach is used to explore the condition of farmer communities in Papua based on the utilization of information communication technology (including ICT infrastructure development solutions, ICT Literacy and ICT Ecosystems) in farmer communities in the villages Ekemenida and Idekotu in Dogiyai, Papua. The results concluded that the provision of ICT infrastructure in the village of Dogiyai Regency of Papua is very poor. There is no Base Transceiver Station (BTS) in both villages, the quality of cellular signals is poor, and there no internet network is available. Communities in these two villages are also ICT illiterate in general. In addition, ICT ecosystems have not been developed, there is no allocation of village funds for the procurement of ICT infrastructure. Based on these conditions, the proposed strategy will suggest the minimum requirement for ICT literacy building, ICT infrastructure building, and ecosystem building for farmers communities in Rural Papua.***

***Keywords—ICT Empowerment, ICT Infrastructure, ICT Literacy, ICT Ecosystem, ICT for Rural Areas.***

di introduction saja

Metode belum ada

jangan ada dua subjek

perhatikan tenses

jangan ada tujuan lagi

grammar: are still facing

setiap singkatan harus didefinisikan dulu

***Abstract*— ICTs and rural areas are still faced with connectivity challenges. However, without setting up the ecosystem of community empowerment will be a mistake in the rural ICT development policy. This paper discusses why empowerment through ICT is a necessity in rural development. Digital poverty is the main reason for the need for empowerment. This paper also proposes a thorough evaluation model empowering either at the level of individuals, organizations and communities by combining the various dimensions of empowerment better social, economic, knowledge and psychological dimensions.**

kalau either … or….

???

***Keywords—ICTs, digital poverty, empowerment***

Tujuan ?
Metode ?
Hasil ?

***Abstract*— Access to quality health care services is critical to good health. When it comes to hospitals in rural areas, the news is even worse. The truth is, there is a shortage of doctors willing to work in remote areas. Many physicians cite the isolation that doctors may experience when they practice in a small town. Others feel they may fall behind the latest technological and medical advances if not located within reach of a major medical facility in an urban area. If there was a way to keep physicians connected to other medical professionals and technological advancements used in urban hospitals, more may opt for a more pastoral lifestyle in a rural area.**

Grammar

***Keywords; Smart Grid; SCADA; Information Security governance, Information Technology Governance***

## VI. CONCLUSION

Based on the empirical evidences of Dogiyai District, the main obstacle for rural areas are ICT literacy, and the absence of ecosystem support. The rural Papua villages are categorized into village level 1 or the ICT early adopter, with minimum ICT infrastructure, ICT literacy, and almost no ICT ecosystem support. The proposed treatment for this level is to fulfil the minimum requirements proposed from this study on three aspects: ICT infrastructure, ICT literacy, and ecosystem support.

To build the ecosystem comprehensively, the most important aspect is the provision of adequate infrastructure, not only at the level of sub-district capitals, but also at the level of villages. If infrastructure factors are available, ICT literacy in the community will improve. Not only can the villagers utilize ICT for daily information needs, they can also utilize ICT for the improvement of their economy. Provision of technological infrastructure by the government to village communities is not sufficient if it is not supported by rural community capacity building programs related to the technology provided. In rural ICT development efforts, it is necessary to look at aspects of socio-technical intervention, stakeholders, ICT providers, and users.

Seharusnya direview apa yang telah di propose, juga method

Temuan kurang jelas

## V. CLOSING REMARKS

Health devices (IoT) such as USG, ECG, Rotgen, etc. to be able to connect to the bias system by using the API in the form of a webservice such as for example when saving the recording results by pressing the save button, the action performed by the machine sends data to the address certain webservice. If the device does not support API with webservice then the thing to do is to build an application to retrieve data to the device by utilizing the SDK from the device. Nusantara Telemedicine System Development is expected to help health services in Puskesmas operations. This is the technical document of the archipelago telemedicine development, hopefully it can be the beginning of good cooperation.

Yang diproposed?
Method?
Kesimpulan?

mirip proposal kerja sama