How to write good engineering papers

- Preparing papers
- EndNote

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"요즘 신입사원, 영어보다 국어가 문제"

신세대 신입사원들은 외국어 구사능력보다는 국어사용 능력이 더 많은 문제점으로 지적됐으며 인사담당자의 40% 가량은 입사 시험에 국어능력 평가를 포함시켜야 한다고 생각하고 있는 것으로 조사됐다.

온라인 리크루팅업체 잡코리아(www.jobkorea.co.kr)는 최근 기업 인사담당자 728명을 대상으로 설문조사한 결과 '신입사원들에게 가장 부족하다고 생각되는 업무능력'에 대한 질문에 '국어관련 능력'을 꼽은 응답자(5.6%)가 '외국어 능력'을 꼽은응답자(5.1%)보다 많았다고 5일 밝혔다.

'국어관련 능력'은 '업무의 전문성'(48.2%), '대인관계 능력'(31.9%)에 이어세번째로 신입사원들이 가장 부족한 업무능력으로 뽑혔다.

신입사원들의 국어능력 만족도에 대해서는 "그저 그렇다"는 응답이 65.4%로 절반을 훌쩍 넘겼고 "불만족"이라는 의견도 23.1%(168명)나 됐지만 "만족한다"는 답은 11.5%(84명)에 그쳤다.

국어능력 중 가장 부족하다고 생각하는 부문으로는 쓰기나 말하기 등 표현능력을 지적한 응답이 39.7%로 가장 많았으며 창의적 언어능력(20.6%), 논리력(17.7%), 문법능력(13.0%), 이해능력(6.6%), 국어관련 교양 지식(1.9%) 등 순으로 나타났다.

국어와 관련된 업무능력 중 가장 부족하다고 생각하는 부문은 기획안 및 보고서작성능력이 53.2%로 과반수를 넘었고 대화 능력도 31.6%를 차지했으며 프리젠테이션 능력(12.8%), e-메일 작성 능력(1.6%)도 문제로 지적됐다.

면접시 평가하는 지원자의 화술 능력으로는 "논리적으로 말하는 능력을 본다"는답이 63.5%로 가장 많았고 이해능력(17.3%), 상대의 말을 경청하는 자세(12.4%), 풍부한 어휘 선택 능력(3.7%), 표준어 구사능력(2.9%) 등 순으로 조사됐다.

한편 신입사원을 채용할 때 토익이나 토플 등 영어능력 평가처럼 한국어 능력시험이 도입돼야 하느냐는 질문에는 43.8%의 인사담당자들이 "필요하다"고 답한 반면 "필요없다"는 의견은 23.4%에 불과했다.

Two key properties of a good paper

- Significant content
  - Original and important ideas that are well developed and tested.
- Good writing style

Publishing papers

- It gives you a source of feedback from people who read your papers.
- It establishes you as a member of the research community.
- It forces you to clarify your ideas and to fit them in the context of the current state of research in your field.

M. desJardins, "How to be a good graduate student," *http://info.acm.org/crossroads/xrds1-2/advice1.html*, 1994.

Where to submit

- Workshop/symposium/conference/journal
- Some papers start as short workshop papers, evolve into conference papers, and eventually – with the addition of detailed empirical results or formal proofs – become journal articles.

If your paper is rejected,

- Keep trying!
- Take the reviews to heart and try to rewrite the paper, addressing the reviewer's comments.

IEEE Transactions on Pattern Analysis and Machine Intelligence Review Form
General Information

Section I. Overview
- A. Reader Interest
  1. Which category describes this manuscript?
  2. How relevant is this manuscript to the readers of this periodical?
- B. Content
  1. Please explain how this manuscript advances this field of research and / or contributes something new to the literature.
  2. Is the manuscript technically sound?
- C. Presentation
  1. Are the title, abstract, and keywords appropriate?
  2. Does the manuscript contain sufficient and appropriate references?
  3. Does the introduction state the objectives of the manuscript in terms that *encourage the reader to read on*?
  4. How would you rate the organization of the manuscript? Is it focused? Is the length appropriate for the topic?
  5. Please rate and comment on the readability of this manuscript.

Section II. Summary and Recommendation
- A. Evaluation
  Please rate the manuscript.
- B. Recommendation
  Please make your recommendation.

Section III. Detailed Comments

A good research paper should answer a number of questions:

- What was your contribution?
- What is your new result?
- Why should the reader believe your result?

M. Shaw, "Writing good software engineering research papers," in *25th International Conference on Software Engineering*, pp. 726-736, 2003.

What was your contribution?

- a clear statement of the specific problem you solved
- an explanation of how the answer will help solving an important engineering problem
- You should begin by explaining what questions you're answering and why the answer matters.

What is your new result?

- What, *precisely*, do you claim to contribute?
  - Does your result *fully* satisfy your claim?
  - Are the definitions *precise*, and are terms used *consistently*?
- What's new here?
  - What is *novel* or *exciting*, and why?
  - What, *specifically*, is the contribution?
  - What is the *increment over earlier work* by the same authors? By other authors?

Why should the reader believe your results?

- *If you claim to improve on prior art*, compare your result objectively to the prior art.
- *If you used an analysis technique*, follow the rules of that analysis technique.
- *If you offer practical experience as evidence for your result*, establish the effect your research has. If possible, compare similar situations with and without your result.

Why should the reader believe your results?

- *If you performed a controlled experiment,* explain the experimental design.
  - What is the hypothesis?
  - What is being controlled?
  - What data did you collect, and how did you analyze it?
  - Are the results significant?
  - Do the conclusions follow rigorously from the experimental data?

Why should the reader believe your results?

- *If you performed an empirical study,* explain what you measured, how you analyzed it, and what you concluded.
  - What data did you collect, and how?
  - How is the analysis related to the goal of supporting your claim about the result?
- *If you use a small example for explaining the result*, provide additional evidence of its practical use and scalability.

Does the abstract matter?

- Many of the clearest abstracts had a common structure:
  - one or two sentences about the *current state of the art, identifying a particular problem*
  - two or three sentences about *what this paper contributes to improving the situation*
  - one or two sentences about *the specific result of the paper and the main idea behind it*
  - A sentence about *how the result is demonstrated or defined*.

Does the abstract matter?

- Whether you like it or not, people judge papers by their abstracts and read the abstract in order to decide whether to read the whole paper.
  - The paper must deliver what the abstract promises.

Ethics:

Feature subset selection algorithms can be classified into two categories based on whether or not feature selection is done independently of the learning algorithm used to construct the classifier. If feature selection is performed independently of the learning algorithm, the technique is said to follow a *filter* approach. Otherwise, it is said to follow a *wrapper* approach [3]. While the filter approach is generally computationally more efficient than the wrapper approach, its major drawback is that an optimal selection of features may not be independent of the inductive and representational biases of the learning algorithm to be used to construct the classifier.

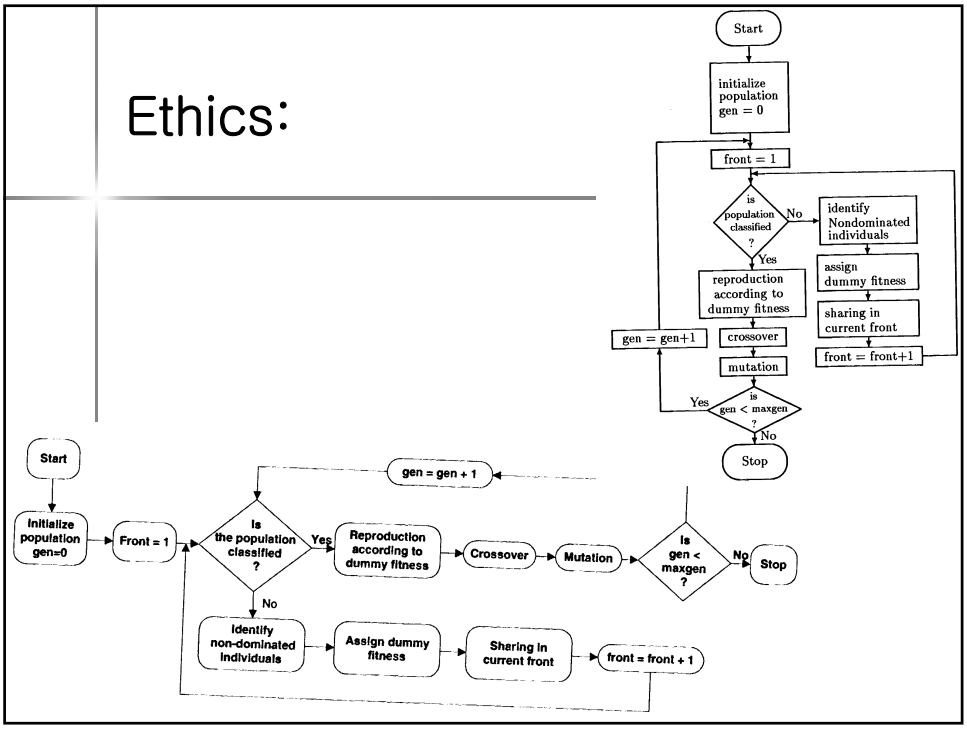
Regarding feature selection algorithms, they can be classified into two categories based on whether or not feature selection is performed independently of the learning algorithm used to construct the classifier. If feature selection is done independently of the learning algorithm, the technique is said to follow a filter approach. Otherwise, it is said to follow a wrapper approach [17]. While the filter approach is generally computationally more efficient than the wrapper approach, its major drawback is that an optimal selection of features may not be independent of the inductive and representational biases of the learning algorithm that is used to construct the classifier. On the other hand, the wrapper approach involves the computational overhead of evaluating candidate feature subsets by executing a given learning algorithm on the database using each feature subset under consideration.

Ethics:

AdaBoost; Freund & Schapire 1996). Bagging is a bootstrap ensemble method that trains each predictor in the ensemble with a different partition of the training set. It generates each partition by randomly drawing, with replacement, N examples from the training set, where N is the size of the training set. Breiman 1996 showed that Bagging is effec-

Bagging [2] is a bootstrap ensemble method that trains each classifier in the ensemble with a different partition of the training set. It generates each partition by randomly drawing, with replacement, N samples from the training set, where N is the size of the training set. The results of all classifiers are then combined by unweighed voting or averaging. Breiman in [2] demonstrates that Bagging is effective on unstable learning algorithms (such as neural networks) where small changes in the training set result in large changes in predictions.

Ethics:



Ethics:

Equation (10) expresses the tradeoff between bias and variance in the ensemble, but in a different way than the the common bias-variance relation [4] in which the averages are over possible training sets instead of ensemble averages. If the ensemble is strongly biased the ambiguity will be small, because the networks implement very similar functions and thus agree on inputs even outside the training set. Therefore the generalization error will be essentially equal to the weighted average of the

Equation 10 expresses the trade-off between bias and variance in the ensemble, but in a different way than the common bias-variance relation in which the averages are over possible training sets instead of ensemble averages. If the ensemble is strongly biased the ambiguity will be small, because the networks implement very similar functions and thus agree in inputs

Common mistakes

- 같은 위치에서의 앞 또는 전(앞과 전이 무엇이 다른가? 아무 생각없이 쓰고 읽고한 것 아닌지?)다음 또는 이전 프레임 간의 3×3 마스크 내에서의 차이값
- 그림 14 (c), (d)에서 볼 수 있듯이 급격한 장면변화 뿐만이 아니라(그림들이 급한 장면에 관한 것이 아니고 디졸브에 대한 것인데, 문장 수식어의 위치에 신경을 쓰지 않으면 의미 전달에 혼란을 줄 수 있다.)급격한 장면변화 뿐만이 아니라 그림 14 (c), (d)에서 볼 수 있듯이 디졸브가 존재하더라도 적합

Common mistakes

- 결과에서 알 수 있듯이 제안하는 알고리즘은 'mom'과 같이 시간정보를 이용하여 높은 성능을 얻을 수 있는 영상의 경우 MC를 이용한 시간정보를 보다 많이 사용하며, 'foreman'에서처럼 aperture 문제로 인하여 움직임 추정이 어려운 영상이나 'cops'나 'kitty'에서 볼 수 있듯이 줌 인, 장면변환 등으로 인하여 움직임 추정 결과를 신뢰할 수 없는 영상이 존재하는 경우 공간정보를 활용하여 잘 못된 움직임 추정에 따른 단점을 보완하여 보다 높은 성능을 얻을 수 있음을 확인할 수 있다.

Common mistakes

- 시간정보의 사용은 영상의 blurring 없이 높은 화질의 디인터레이싱을 가능하게 해주며, 부정확한 움직임 추정이나 급작스런 조명 및 장면 변화와 같이 정확한 시간정보를 얻기 어려운 경우 공간정보를 이용하여 효율적인 디인터레이싱이 되도록 하였다한다.

Common mistakes

- MSE의 수식은 식(3.2)와 같이 표현할 수 있다. MSE는 식(3.2)와 같이 표현된다.
- 특히 깜박임 현상은 현상이 일어나는 원인 중 수평 에지 성분에 의한 깜박임 현상이 일어날 경우 별도의 가중치를 적용하였다. 특히 수평 에지 성분에 의해 깜박임 현상이 일어나는 경우 별도의 가중치를 적용하였다.

Common mistakes

- 적은작은 화소값 사이의
- 만족시키는만족하는 마스크를
- 대상물체의 정확한 형태를 얻기 어려우며 대상물체의 형태에 대한 정확한 정보를 얻기 어려우며
- 이용하여 쉽게 움직이는 물체를 검출할 수 있다. 움직이는 물체를 쉽게 검출할 수 있다.

Common mistakes

- [2] A. Nguyen and E. Dubois, "Spatio-temporal adaptive interlaced-to-progressive conversion," *in Signal Processing of HDTV*, IV, E. Dubois and L. Chiariglione, Eds. Amsterdam, The Netherlands : Elsevier, pp. 749-756, 1993.
- [6] Doyle and M. Looymans, "Progressive scan conversion using edge information," *Third Int. Workshop on HDTV*, 1989.
- L. S. A. T. S.W. S. M. Lucas, A. Panaretos and R. Young, "Icdar 2003 robust reading competitions,"...
- L. Gu, N. Tanaka, and R. M. Haralick, "Robust extraction of charactors from color scene ... (저자 한 명 빠짐)

EndNote

- Save your time and energy for
  - Searching bibliographic databases
  - Organizing your references (and images)
    - Avoid typing weird names (such as Gyeonghwan), numbers, punctuation marks, and so on...
  - Creating bibliographies
    - Cite While You Write in MS Word
    - Supporting more than 1,000 styles
    - A filter is provided for supporting BibTeX as well

EndNote

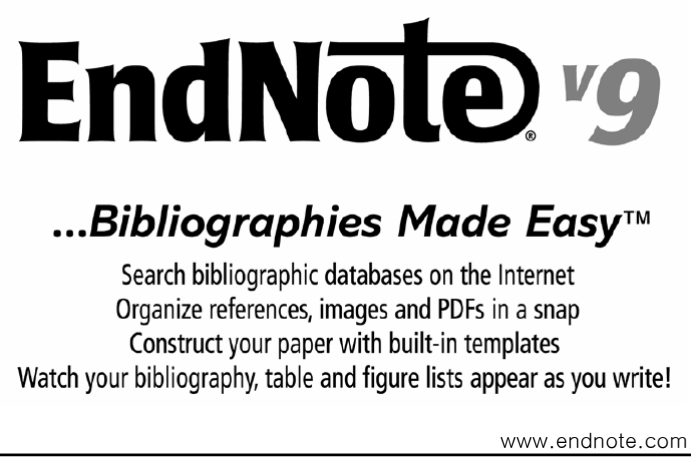
- Organizing references
  - To create an `.enl` file for EndNote and type the reference information
    - Nothing is attractive?
    - Go to the next.

EndNote

- Downloading from digital libraries (It's cooool!)
  - Major digital libraries support citation download.
    - IEEE Xplore (IEEE/IEE journals/transactions)
    - ScienceDirect (Elsevier journals)
    - SpringerLink (Springer/Kluwer journals)
    - Major universities around the World!
  - More than you have expected are provided!

EndNote

- Demonstration



Summary and Conclusion

- Good engineering papers
- Tools that make our lives much easier!