Statement of Purpose – II

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Intro

I had been planning to write the sequel of my last article "Writing a Statement of Purpose" for a long time. Even though I started writing this article last year, I could not finish it up at the right time. Last year was a bit hectic for me. Graduation, going home, and joining my new job did not give me much time to spare. Finally, I set up my mind, and here I am again. I thought I would say some of my "intellectual" words to "enlighten" others⑤, my 2 cents.

As the name suggests, this article will be a sequel of my last article. I will follow the same writing tone, which will be very informal. Over the last year, I received quite a number of SOP-review requests from CSE-BUET students (well, mostly. I have found that there are a couple of students who are not from BUET are also member of the csebuet group. However, I do not think that is a very bad thing or big of a deal, and obviously not of my interest in this article). Anyway, I tried to review all those requests and found some common mistakes that should be pointed out. I should not say all of these were mistakes, rather I would say they did not follow a good guideline, and made some common grammatical and technical mistakes. Because, I believe, an SOP can be written in many ways, and not always my viewpoint would be correct. Therefore, the suggestions that I am going to make in following paragraphs may not be accepted by everyone and obviously debatable.

Instead of taking a vague approach, as I did in my last article, I would like to be a bit more concrete this time. Therefore, I would not say "what to write", rather "how to write". Most of these suggestions are grammatical and technical issues of writing. I will use some of my reviewed SOPs here as examples to explain without revealing the identity of the original author. I tried my best not to breach any privacy line, but if I do unintentionally, please contact me. Just like any other writing, I am not free from errors. So my apologies before I begin.

Let's get started

As I said, I will try not to make any vague suggestions. For example, I am not going to say what to write, which research interest to put, or how to make you unique. In my defense, these things depend on person to person. Rather, I would focus on things like how to write, what mistakes should not be made or avoided. So let's dig in.

SOP Structure

An SOP can be written in many ways. But I like to classify them in two broad categories.

- 1. Time series
- 2. Order of importance

Before explaining these two, I should put down a basic structure of an SOP. I think, an SOP should be composed of at least the following components,

- 1. **Intent** This is the introduction. In my defense, this is one of the most crucial ones. As morning shows the day, an introduction should give a very good first impression about the candidate. The writer should also clearly put down his/her intent. What he wants to do (MS or PhD) and in what field. Just saying that you want to do PhD in Computer Networks is not enough. Be a bit more specific by saying things like distributed protocols or wireless sensor networks.
- 2. **Undergraduate coursework and/or projects** As most of us do not have very good exposure or experience in research work, this item takes a good amount of space for most of us.
- 3. **Research/Professional work** As you will be applying for a research-based graduate degree, showing that you have some experience in research and have very strong potential are very important. A typical BUET-undergraduate student would put his/her thesis work here. Professional experience also falls in this category.
- 4. **Intended research work** This is where you describe what you like most and what you would like to do as your research work if you are admitted.
- 5. **Why you like University X** This is where you tell why you want admission at that specific university, mentioning their strengths, relating to your interest.
- 6. **Conclusion** This is like reviewing what you said you so far, and may be adding some personal strength that you feel worth mentioning.

I think the first section should always be in one paragraph. But the rest can be constructed with separate paragraphs, or even you can merge two components. For example, item 4 and 5 can be merged together. However, please do not write a lengthy one. Writing a three page SOP or a half page paragraph makes no sense. I even discourage a two-page SOP. One and a half page should be the ideal. But please, do not use smaller fonts to make more space.

Now about the classification, the time series category actually means you write it in the order things happened. This is most suitable for people who do not have very rich research/work experience. The order mentioned above gives a good example of time-series category. The order of importance category focuses on things which are more important. For example, if someone has been working on some research work

after/during his/her graduation, she can mention her research achievements before describing any undergraduate courses/project works. Basically, this means you swap item 2 with item 3, with more focus on research works. But I believe most of the BUET students will find the time series structure most convenient and suitable for them.

One common suggestion I will make is that whenever you write a paragraph, always relate to your intent, which is why you want to do MS/PhD. You should not just mention that you did this and that course. You should also tell why you feel that the things that you have learnt from those courses will help you to build a better research-oriented career.

Rule of Thumb

The rule of thumb is really very simple. "If you cannot say the sentence that you just wrote in one breath, better don't write it. Break it and restructure it". This is one of the most common mistakes that I encountered. Have a look at the following snippet,

Mathematics has always been my favorite subject right from my high-school days. This was mainly because of the excellent teachers I had, who always encouraged me to delve Comment [HM2]: Not a good phrase. deeper, and I found that I had an appetite for mathematics. When I got admission to the Comment [HM3]: Read one more time this whole sentence prestigious Khulna University of Engineering & Technology (Erstwhile Bangladesh Do you have a well-structured sentence? Institute of Technology, Khulna), securing 17th position among all the examinees for that Comment [HM4]: Not the right preposition. year, I chose to continue my study in ecomputer sscience, as I thought this would be the Comment [HM5]: Definite article does not come before right place to work with mathematics and programming logic. Through out my Comment [HM6]: Did you continue or start? undergraduate study, I had the passion for problem solving, and my interest aroused Comment [HM7]: Locong sentence. when my programming team became runners up in the inter Engineering University programming contest, 2005, Bangladesh. I rarely missed any opportunity to participate in Comment [HM8]: Is it Inter-Engineering?

The sentence at the middle ("When I got admission") of the paragraph above has nearly 4 different sentences. Most of us including myself tend to write long complex sentences, separated by connecting words like, "and", "as", "though" etc. The first problem with this approach is that the reader gets lost as he keeps reading. You should keep in mind that the reader is a member of an admission committee, who is reading hundreds of SOPs. The reader does not have much time to figure out what you actually wanted to write. It is your responsibility to keep him in the context, not repel him by writing long, never-ending sentences.

The second problem with this is that you, as a writer, will mess up the structure of the complex sentence pretty quickly. The tense of the whole sentence tends to be out of sync, verbs fail to follow the subject, and right conjunctions are not used. For example, look at the following sentence,

me national and international programming contests neighborhood in Bangladesh, as I could share my logic and borrow from others during those is events. I was fortunate to have touches from some real encouraging books like "Programming Challenges" by Steven S. Skiena of Stony Brook, or "The Art of Computer Programming" by Donald E Knuth, and his coauthored book "Concrete Mathematics" those helped my insight building for looking into deeper and deeper to a subject matter for problem solving in my undergrad days and even in these days.

Comment [HM10]: Again very long sentence, and wrong structure.

The last sentence in the paragraph above has more than 4 parts, and the structure of whole sentence lost its track at the end. So, my basic suggestion would be not to write a complex sentence with more than two different simple sentences. It is always a good practice to avoid complex sentences as much as possible. Writing long sentences introduces other very common mistakes. For example, not using appropriate conjunctions or not using commas appropriately.

Use of Comma

When there are more than three terms, use a comma after each term, except the last one. Generally, the last term is preceded by an "and" or "or". Look at the following example.

time of my undergraduate school. The simplicity of the program amazed me. However, as I was exposed

to the broader fields of computer networks, distributed systems, and operating systems through my coursework, I was awe-struck by the complexity and the amount of effort that has been put behind what appeared to be a simple thing. In the upcoming years, I closely followed the developments in related areas. In particular, I found the emergent global model of reliable distributed computing most

There should be commas after computer networks and distributed systems. Finally, there should be a comma before the "and". The sentence above also makes the mistake of wrong usage of definite article and long-sentence syndrome.

Similar mistakes are made when adding two independent clauses with an "and", "where", or other conjunctions. Look at the following paragraph as an example.

as ASCAPE, Repast J, and Swarm. I have been working on embedding the concept of social networking in a search engine, where the information will be searched over the internet according to the empirical-feedback profile of a particular user. The user feedback for a particular site will be collected in a user profile from user's visiting period in that site, and through the Human activity detection and recognition process from audio and video stream. The past experiences of users will

There are some other cases where use of comma is desired. For a list of very good examples, please consult <u>The Elements of Style</u>, by Strunk and White. I would strongly recommend everyone to go through this article before writing their SOPs.

One more common mistake, which I have seen quite often in many SOPs, is not using comma before "which". When you are connecting two clauses separated by which, there should be a comma before the "which". Take the first sentence of this paragraph

as an example. You can also use "that" instead of "which". In that case there should be no comma before "that". For example, I could write "One more common mistake that I have seen...".

Use of Articles

I know most of us have already forgotten what we have learnt (or memorized) about English grammar during our primary/high school periods. Use of articles is one of them. During the first year of my graduate studies, I had a very hard time with my advisor correcting them. I still forget to use articles in appropriate places. In fact, this rule is one of the most common asked questions in TOEFL.

I would urge future SOP writers to consult their grammar books one more time before they start writing, especially the articles section. I am not much of a grammar guy. But remember that there are two types of articles, definite ("the") and indefinite ("a", "an"). The definite article is used before a noun, which has already been introduced (not necessarily in your writing), or to a particular member of a group. Look at the corrections in the following review, which was presented earlier.

as ASCAPE, Repast J, and Swarm. I have been working on embedding the concept of social networking in a search engine, where the information will be searched over the intermet according to the empirical—feedback profile of a particular user. The user feedback for a particular site will be collected in a user profile from user's visiting period in that site, and through the Human activity detection and recognition process from audio and video stream. The past experiences of users will

Believe me, you will forget at least one article or may be more when you write your first draft SOP.

Use Active Voice

It is always advisable to use active voice. Active voice gives a direct approach. As you are presenting yourself to the reader, active voice makes your sentences more straightforward. Rather hiding behind passive voice, make yourself heard. But this does not mean that you should not use passive voice at all. There might be cases that warrant passive voice. But it is always desirable to use active voice rather than passive voice.

Too Much is Too Much

Some students take SOP as a medium of presenting all their prior works. As a result, if he/she has some publications and research experiences, tendency goes towards putting all the details in the SOP.

In my undergraduate thesis, I have worked along with two classmates on Real-time Operating System (RTOS) and Embedded Systems. We explored the design of Micro-Controller Operating System (uC/OS) and RT patches in Linux 2.4 series kernel. In RTOS design, we focused on interrupt latency, scheduling policies, context-switching overhead, kernel preemption policies, duration of ISRs and critical code regions, resource management policies, power consumption issues etc. In uC/OS, we found several simplifying design choices which were intentionally introduced to improve system response time and maintain a small kernel footprint. But sometimes these simplifications can pose some severe limitations both on performance and scalability. For instance, uC/OS kernel ensures Q(1)scheduling by restricting one task in each priority level which leads to priority inversion problem. No support for deferred interrupt processing makes it inappropriate for systems such network packet processors where ISRs are longer. So, we proposed introducing linked list of tasks at each priority level and deferred interrupt processing. In Linux 2.4 kernel, although an RT task gets a higher 'goodness' value, the non-preemptable kernel mode sometimes works against achieving an RT behavior. We found that the Linux RT patch tries to solve the problem by introducing voluntary scheduling points at safe places during the kernel code execution. To reduce context-switching time, we proposed separate hardware TLBs for kernel space and user space memory page translation. We also researched on harnessing the total capabilities of separate embedded system entities for better performance, fault-tolerance and ensuring high-availability. We proposed a co-operative communication and a distributed knowledge sharing architecture. We termed this new vision as Organic Embedded System. Ok what's the point here? You did something, realized something, then what? Whats the relation? And also the flow from the previous para is lost.

In the paragraph above, the writer basically tried to write down a detail explanation of what he did on a certain work. You should remember that the reader might not be familiar with the topic you are presenting. Therefore, it is not advisable to put detailed explanation of you work. Also, the reader does not have much time to read all of these. If you really want to present your prior works, better write those down in your resume (which is not always explicitly asked to submit during the application process, but I would suggest you to submit one). Even in a resume, this much details are not expected.

I have even seen separate paragraphs for each of their works. So the rule is "do not put too much details". Put yourself in the position of the reader and try to write down accordingly.

Topic Sentence

Writing a good piece of text takes a lot of practice. This does not happen overnight. Yet, there are some basic things that you might focus on. One of these is the use of a topic sentence.

Each paragraph in an SOP (and also in other writings) should have one single idea, and the paragraph should begin with a topic sentence. A topic sentence is the gist of the whole paragraph. So, when a reader starts reading, he should get an idea about that specific paragraph. A topic sentence should come at the beginning of the paragraph, if not the first sentence. More on topic sentence and structure of a paragraph can be found here.

Also, never put two or more distinct ideas in one paragraph. For example, look at the following paragraph.

I intend to pursue an academic career devoted to research at the highest level. To achieve this goal, I have taken the decision to attain the requisite knowledge and experience through Graduate Studies. Attending conferences enkindled my interest in research. I had to complete a thesis in senior year and the research work inspired me, even more so when the results were published in the international conference. This research experience inspired me to focus on research and pursue an academic career, which is most conducive to research work. My undergraduate thesis with Md. Mujibur Rahman and Assistant Professor Dr. Mostofa Akbar was published in the proceedings of 1st International Computer Engineering Conference (27-30 December, 2004, Cairo, EGYPT). The topic was "Reservation Based Admission Controller Multimedia Server System" In this work, we submitted an admission controller for multimedia server which makes customers more feasible by ensuring of the services. Combined with my 2 years experience in software development, these are the credentials that I would like to present as a candidate for the graduate studies at the University of Virginia. I feel that graduate studies at doctoral level will be the right way to go for improving myself and furthering my career.

Comment [Helalil]: You have two topics in this para. Your intention plus your thesis work. I would suggest to break this para into two.

In my senior year. I took great pleasure in studying the Computer Networks

Here, first the writer tried to put his thesis work plus his intention in one big paragraph, which happens to be the first paragraph of this SOP. As the starting paragraph of an SOP, this paragraph is really big. I personally believe that the starting paragraph of an SOP should only contain your intention. Your intention should include what you want to do (MS or PhD), on what topic (Distributed Systems or Compiler), and finally a little bit of "why". Just like a topic sentence gives the idea of a paragraph, the starting paragraph of an SOP should also contain the gist of the whole SOP.

Paragraph Paragraph

Paragraphs are the building blocks of any writing. Putting consistent, coherent, and well-structured contents in a paragraph is really hard. It takes a lot of practice. Below are some guidelines to follow.

First, you should focus on the size and the content of the paragraph. The size of a paragraph is hard to determine. But it should not be too small or too large. Rule of thumb – a paragraph should have at least three sentences. However, I have seen paragraphs in some SOPs with three or less sentences, which were large enough to look like a paragraph with ten sentences. This happens basically due to the tendency of writing long and complex sentences.

Second, work on the flow, which is one of the most important aspects of writing. When a reader reads a piece of writing, he should feel that he is going through a smooth ride. I know I am being a little vague here. But life does not always give concrete examples. Flow is the connection between consecutive paragraphs. When writing multiple paragraphs, the writer should not make abrupt transitions between two

consecutive paragraphs. Typically, there should be a connection between the last sentence of a paragraph and the first sentence of the paragraph following it. As an example (something concrete©), look at the following two paragraphs.

In themy undergraduate thesis, we also researchedfocused on harnessing the combined capabilities of separate embedded system entities for getting better performance, fault-tolerance and ensuring high-availability. We came up with a new vision called Intelligent Embedded Systems where embedded systems will be capable of adaptation to the environment by dynamically communicating other embedded systems around them and sharing their experience. We proposed a co-operative communication architecture and a distributed knowledge sharing architecture for this purpose. An indepth knowledge in these areas can only be gained by further studies in an intellectually stimulating environment. Add sentences here to relate your experiences with your goal. For example you can say - These experiences with embedded systems have inspired me to chose a research oriented career path where I can devote myself onto what I really like and find much interest.

Everyone seeks quick and reliable access and exchange of information. In my professional life, I have the opportunity to work with information storage system. I am involved in a project, where I designed and implemented a disk driver. During the storage system driver design, I had to study Linux page cache subsystem runtime behavior. To improve the driver performance, I have used clustering of block I/O requests. Yet, the non-preemptable kernel incurred a performance penalty. To achieve a reschedulable data transfer, I have created a kernel thread for processing clustered requests under high disk access rate. To ensure data consistency and high-availability, a journaling file-system was used. During the study on page cache subsystem, I felt the need for a separate metadata cache, so that we can achieve a faster access to the file-system metadata. This will reduce metadata inconsistency problem on various other types of file-systems too. These studies and experiments have made me much interested in research in diverse types of storage media, and their performance and reliability related issues.

Comment [Helali2]: This first sentece totally goes off the track from previous paragraph. Add a connecting sentence to the previous para. For example you could say – In my professional life, I also had the opportunity to work on reliable information storage systems. As an information storage system needs to be reliable and fault-tolerant, I worked on a disk driver implementation that focuses on these issues.

There are multiple mistakes in the example above. First, try to read the two paragraphs (ignoring my comments in blue). You should feel that there is an abrupt transition between them. The first sentence of the second paragraph does not relate to the first paragraph. Second, the first paragraph does not finish smoothly. The writer introduces his thesis work, but does not relate that to the context. Your sole purpose of writing an SOP is to convince the reader why you are a good candidate and why you are applying. Therefore, whatever you write should have some connections to that theme. This example also shows some missing commas and missing articles.

Just like there should be a smooth flow between consecutive paragraphs, there should also be smooth transitions between sentences. Take the following as an example.

I want to rise above the conventional mainstream and do something worthwhile. As such, I strongly feel the need to both update and enhance my existing knowledge. [I am motivated to attend graduate school by my interest in how to prepare design and technical specifications that, if implemented properly, will address functionality, reliability, maintainability, testability, ease-of-use and other attributes of software. Furthermore, I want to study software development process that will deal with cost and duration of development and risks in development of software. After my graduation I have decided to avail myself of the research opportunity that I was missing so far. I believe pursuing a Masters degree, and subsequently, a PhD at a reputed university like XXX would be an excellent way to accomplish all my goals.

Comment [Helali9]: Update knowledge? Not a good word.

Comment [Helali10]: Long sentence. reader will feel lost.

There are multiple mistakes in the example above. But the most important thing to notice is that the flow between consecutive sentences is not good. Other than that, it

also shows wrong/poor usage of words and wrong sentence structure (which is the inevitable consequence of writing long sentences).

Read, At Least Thrice

"After dinner walk a mile, after writing each sentence read a while". That is my motto when I write something. Even though I try to follow it, most of the times I forget to do that. As a rule of thumb, one should read each sentence at least three times to see if he has really written the thing that he wanted to express.

In most cases, I believe, people start writing their SOPs at the end of their application process. Writing a good piece of SOP takes more than a month. Therefore, you should plan ahead, and read and reread what you have written. Make sure you have written grammatically and logically correct ideas.

An SOP is not just a way of expressing your undergraduate work. It is also a way of showing how well you can write, which is a very important aspect of being a good graduate student. As a graduate student, you are not only asked to be a good student, but also asked to be a good writer. You will be expected to write papers, thesis, and also review papers. I can give the admission-decision process at the Computer Engineering program at the University of Virginia as an example. The admission committee requires you to have at least 750 in Quantitative and 600 in Verbal in your GRE. They also ask to have at least 4.5 in Analytical Writing. If you have a lower writing score, you may compensate that by having a higher Verbal score. They look for the high writing score because they require you to be a good writer. If you have a low GRE score, you can also compensate that by writing a good SOP. Therefore, it is really very important to have a bullet-proof SOP.

Even small mistakes like missing commas will raise their eyebrows. In no way you would want to give them the chance of thinking that you cannot write a simple piece of sentence. Therefore, it is very important that you read and reread each and every sentence. So, the rule of thumb is to read each sentence at least thrice as you write. Also read the whole the paragraph each time you write a sentence. Make sure you wrote what you actually wanted to write, and the flow is good.

Being Professional

There are some small things that you should also keep in your mind. Following is a list (obviously not complete) of those small but very important things.

1. You are writing something, which will be reviewed by some very professional and talented people. So, be professional. Do not use shortcuts. For example, do not use "can't". Rather say "cannot". And do not even think about using chatting/sms terms (gr8, neway, hv). Personally I even hate when people use

- these shortcuts in emails. You may use them when writing to your friends, but not obviously to a professional group like csebuet.
- 2. Do not use colloquial words. Do not use the word "like" when you are giving examples. US teenagers use the word "like" a lot, at least once in each sentence they speak. Rather use "For example".

Thus, after exploring different facets of Computer Science, I feel that I am in a strong position to choose my field of graduate study, namely Software Engineering. I want to work in an area, which is application oriented and interdisciplinary in nature, and to my view. Software Engineering fulfills all the expectations. With hot research areas like ubiquitous computing, web technologies, and machine learning, I believe there is a lot of potential for great innovation for designing software architecture for web and ubiquitous environment probably with machine intelligence and I want to explore this further.

Comment [HM24]: Sounds odd.

Comment [HM25]: You could make two shorter sentences.

Comment [HM26]: Do not use "like" to give examples.

Comment [HM27]: Three 'for's? Break it. I did not even try to read the whole sentence.

The paragraph above lacks some of these guidelines. The use of "like" and "namely" does not sound professional here. Also, the last sentence lost its meaning being too long. Note how many "for"s and "and"s have been used at the last sentence, which totally blew the whole sentence.

- 3. It is better not to use present participle tense. Instead of saying "I have done many projects", say "I successfully completed many projects". Even though both are correct, it is a common practice to use past indefinite rather than present participle tense in most cases.
- 4. Do not use extreme words. Terms like (I admit, I like the word "like" too) "totally awe-struck", "fell in love".

I have a strong background on research in Distributed system and High performance computing I became cognizant about distributed computing at the very beginning of my undergraduate career.

I started working on that for my own interest. (At that time, I came to know about Grid computing a diverse of distributed computing, and I became awfully interested about it and decided to proceed further with this topic.) It is being has been almost two years that I am engaged in grid computing rigorously. (In the course of time learn a lot about grid computing and make a dream, the dream is the universe with single computer). I have carried out lots of experiments in grid computing arena most of them are related to software architecture in grid computing. I am trying to establish some software architectures for different software in grid system. One of my papers

Words like "awfully interested", "make a dream" make this example a typed one. Lots of people use these fancy words. I suggest not using these words.

Also, note some of the very common mistakes. Besides the wrong sentence structure and missing commas, note the remarks at the word "that" in the third sentence. The writer is actually referencing back to the term "distributed computing" from the preceding sentence. But it could also mean that he is referencing his undergraduate life. Instead of creating any confusion, always try to use the actual term. He could rephrase that sentence as "I started working on Distributed Computing for my own interest". Also, instead of using "for", using "on" sounds more clear here ("I started working on Distributed Computing on my own interest"). When you say "for my own interest", it feels like you are doing this to earn some monetary gains (one might disagree). Even

- though both of these prepositions are correct, use of a particular preposition might change the meaning.
- 5. Try not to use negative things. Things like explaining why you have a low CGPA are not a good idea. Giving excuses was never a good idea.
- 6. Write your name and sign at the end to give a final professional touch, unless you are submitting your SOP online. Even for the online submission put your name at the end.

Miscellaneous

There are some other small points worth mentioning.

- 1. Do not start a sentence with "And". I have seen many examples that do this. Avoid it. If you feel that you cannot avoid the "And", you better think about restructuring the sentence.
- 2. Try to focus on the use of nouns and verbs. Some words can take both forms. One very good example is setup. When you say "I know the setup of the machine", then here it is used as a noun. But if you say "I set up the whole circuit board", then it is a verb. In this case, note how setup is spelled as two different words (not "setup", rather "set up"). Writing an SOP being a CSE graduate you might often encounter this "setup" word, and you should not make this mistake.
- 3. Do not say "In my undergrad"; rather use "undergraduate study". As I said, no shortcuts.
- 4. When there are three consecutive nouns/adjectives, connect the first two with a hyphen. For example, "real-time traffic", not "real time traffic". "Low-power transistor", not "low power transistor".
- 5. There is no point of giving any web link in an SOP, as the probability of a professor to type that on a browser while he is reading hundreds of SOP is low. However, giving your homepage or other links in the resume is a good choice.

I guess that was all I had to say for today. Wish you luck as always. Shoot me an email if you have any questions or comments.