Article presentation

pn: A Tool for Improved Derivation of Process Networks

Sven Verdoolaege, Hristo Nikolov, and Todor Stefanov

Quentin Corradi

January 19, 2021

Useless slide #1

Useless slide #2

Design Gap / Implementation Gap

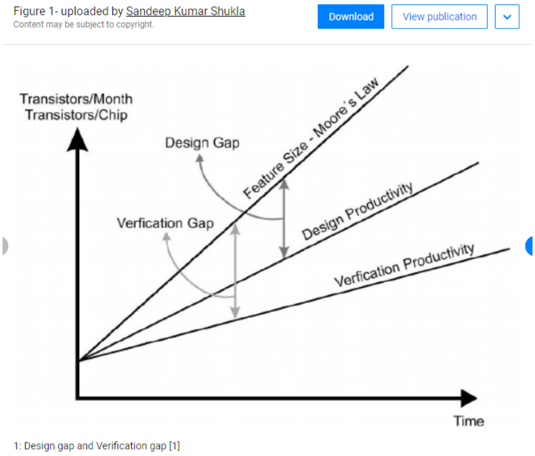


Figure 1- uploaded by Sandeep Kumar Shukla
Content may be subject to copyright.

1: Design gap and Verification gap [1]

Figure: This presentation is sponsored by “Microsoft take a screenshot of this please”

Bridging the gap

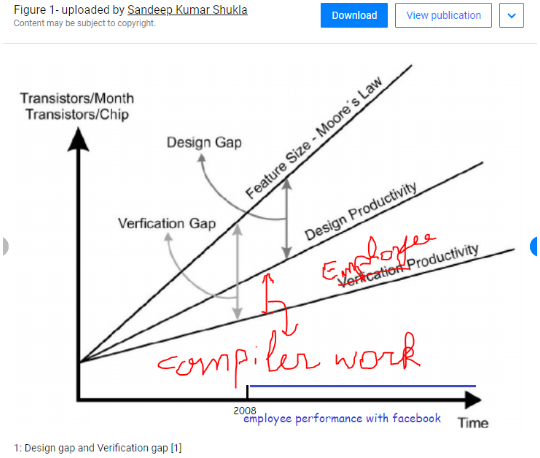
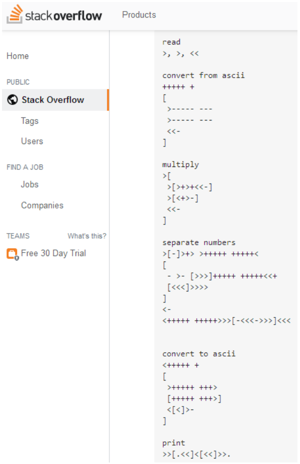


Figure 1- uploaded by Sandeep Kumar Shukla
Content may be subject to copyright.

1: Design gap and Verification gap [1]

Figure: This presentation is also sponsored by "Microsoft Paint for fast low quality work"

Process network is SOLUTION



```
read
>, >, <<

convert from ascii
+++++ +
[
 >----- ---
 >----- ---
 <<-
]

multiply
>[
 >[>+>+<<-]
 >[<+>-]
 <<-
]

separate numbers
>[-]>+> >+++++ +++++<
[
 - >- [>>>]+++++ +++++<<+
 [<<<]>>>>
]
<-
<+++++ +++++>>>[-<<<->>>]<<<


convert to ascii
<+++++ +
[
 >+++++ +++>
 [+++++ +++>]
 <[<]>-
]

print
>>[.<<]<[<<]>>.
```

Figure: Crappy code produced by underpaid developper using "stack work(over)flow"

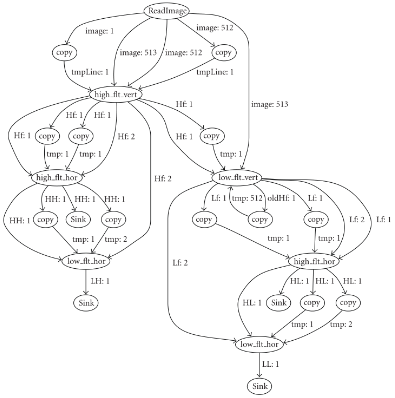
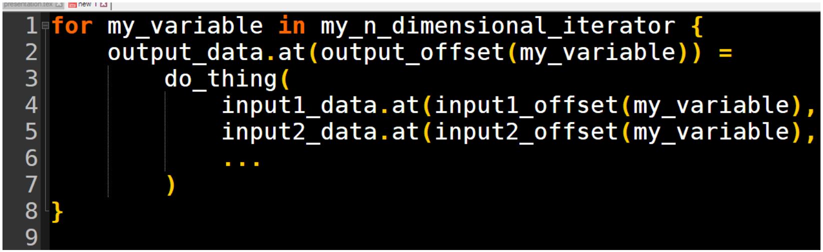


Figure: Process network work^{TM} in parallel, this presentation is also sponsored by "Optimistic predictions"

Useless slide #3

SANLPs



```
for my_variable in my_n_dimensional_iterator {
    output_data.at(output_offset(my_variable)) =
        do_thing(
            input1_data.at(input1_offset(my_variable),
            input2_data.at(input2_offset(my_variable),
            ...
        )
}
```

Figure: A SANLP, I give an open badge to whomst can pronounce "SANLP"

Vectors make channels

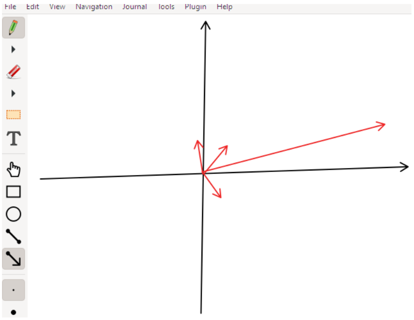


Figure: Read-Write dependency vectors, dimension and length are not faithful

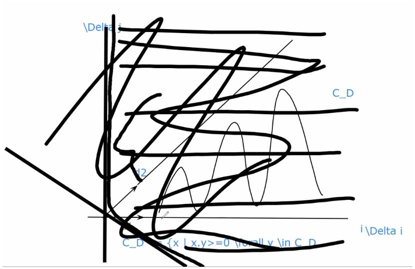


Figure: Cone of dependency in which you can select vector to reorder computations but we won't do that here

Be smart, read-read is dependency

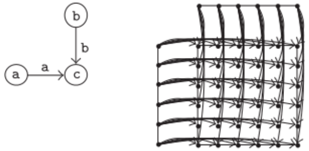


FIGURE 3: Outer product dependence graph with multiplicity.

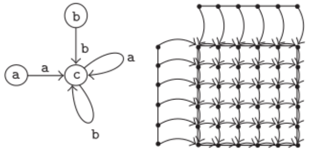


FIGURE 4: Outer product dependence graph without multiplicity.

Figure: Actually you don't need to be smart, reuse-chan is your friend

Show time

8 EURASIP Journal on Embedded Systems

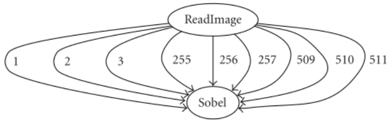


FIGURE 6: Compaan generated process network for the Sobel exam-

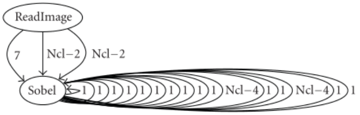


FIGURE 7: The generated process network for the Sobel example us-

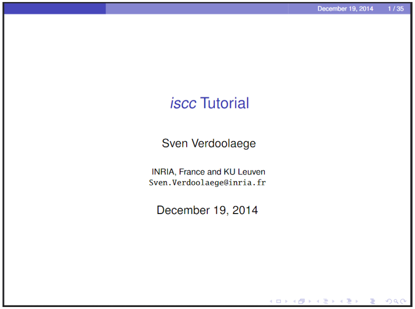
Figure: Finally an almost correct figure

Compute the FIFO size

Use barvinok (iscc is barvinok) or do unsound computations, whatever you have time for.
Btw I did not have time to find a picture for this slide so deal with it future me.

Compute the FIFO size

Use barvinok (iscc is barvinok) or do unsound computations, whatever you have time for.
Actually I found something.


December 19, 2014 1 / 35

iscc Tutorial

Sven Verdoolaege

INRIA, France and KU Leuven
Sven.Verdoolaege@inria.fr

December 19, 2014

Figure: This might or might not be an author of the present paper

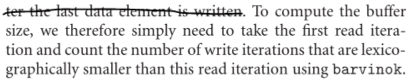

~~ter the last data element is written~~. To compute the buffer size, we therefore simply need to take the first read iteration and count the number of write iterations that are lexicographically smaller than this read iteration using `barvinok`.

Figure: A thourough explaination on how to compute FIFO size using barvinok

Useless slide #4

Useless slide #5

Any question, feel free to ask.
Actually no. Feel threatened if you have a question and don't ask it. I am friendly, I promise$^{\text{TM}}$.