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VideO Processing Language

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VideO Processing Language

Content

1. Overview and Motivation
2. Language Tutorial
3. Language Implementation
4. Lesson Learnt
What is VOPL?

- C-Like
- Imperative
- Strong Typed
- English-Like
- Non-Scoping
Why VOPL?

Feature 1
Easy to Use

Feature 2
More Strict

Feature 3
Using English-like Statement
What VOPL has?

- Provide two levels abstraction for programmers:
  1. Video-Level
  2. Image-Level

- Provide basic arithmetic operations control flow construct
What VOPL misses?

- Limited Format Support
- No Scoping Rule
- Weak in Tracking BUG
Language Tutorial (1)

load ID from "/path/filename" with Height and Width

store ID to "/path/filename"

avi/yuv

ID

ID

avi/yuv
Language Tutorial (2)

insert ID1 to ID2 from fnum

ID1

ID2

ID2

ID1

ID2

copy ID1 from fnum_begin to fnum_end to ID2

ID1

ID2

ID2

ID1
delete ID from fnum_begin to fnum_end

update ID from fnum_begin to fnum_end

{ .... this(i,j) ..... }

for every frame do...

fnum=15 to fnum=100
/*This is a sample of VOPL file*/
void foo(video a, video b, video c, video d)
{
    delete a from 1 to 150;
    copy b from 101 to 200 to d;
    insert c to d from 100;
    insert d to a from 75;
    store a to "news-composed.yuv";
}

void main()
{
    video v1, v2;
    video v3, v4;
    load v1 from "news.avi" with 352 and 288;
    load v2 from "news2.yuv" with 176 and 144;
    load v3 from "coastguard.avi" with 352 and 288;
    update v2 from 1 to 300
    {
        int i, j;
        for (i = 1; i < 143; i = i + 1)
            for (j = 1; j < 175; j = j + 1)
                this(i, j) = (this(i, j) + this(i + 1, j) + this(i, j + 1) +
                              this(i + 1, j + 1)) / 4;
    }
    foo(v1, v2, v3, v4);
}
Language Implementation

- Lexer
- Parser
- Code Generator
- Matlab Compiler
- Semantic Analyser

VOPL Code → tokens → Parser → AST

Matlab Code → Modified Video

Original Video

www.themegallery.com
Lesson Learnt

- Designing a language is far more complicated than implementing it.
- Ocaml is an effective language for developing a compiler and it has powerful IDE.
- It is very important to test every segmental part of a compiler.
Thank you!