

Uma breve introdução



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Qual a definição de Computação Gráfica?

O que é Computação Gráfica?

“... computação gráfica inclui quase tudo em computadores que não é texto ou som.”

(Fonte: Cornell University Program of Computer Graphics)

O que é Computação Gráfica?

O termo “Computação Gráfica” em português é uma tradução errada do termo “Computer Graphics” em inglês, pois o substantivo é “Graphics” e o adjetivo é “Computer”.

A tradução correta seria
“Desenho assistido por computador”.

(Informalmente: Computação Gráfica é a arte do “make believe”, isto é, é a criação de imagens que tentam transformar em real alguma coisa que só existe virtualmente.

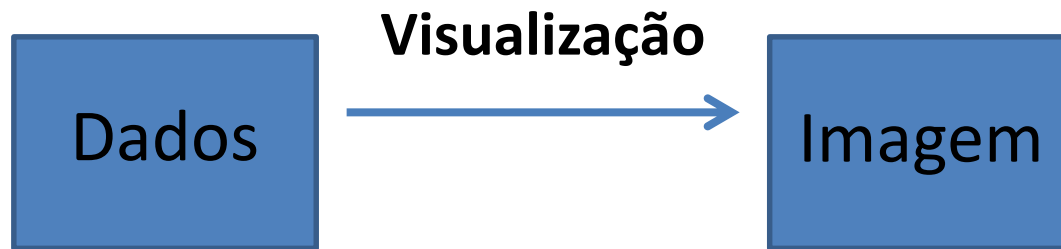
Áreas da Computação Gráfica



Dados

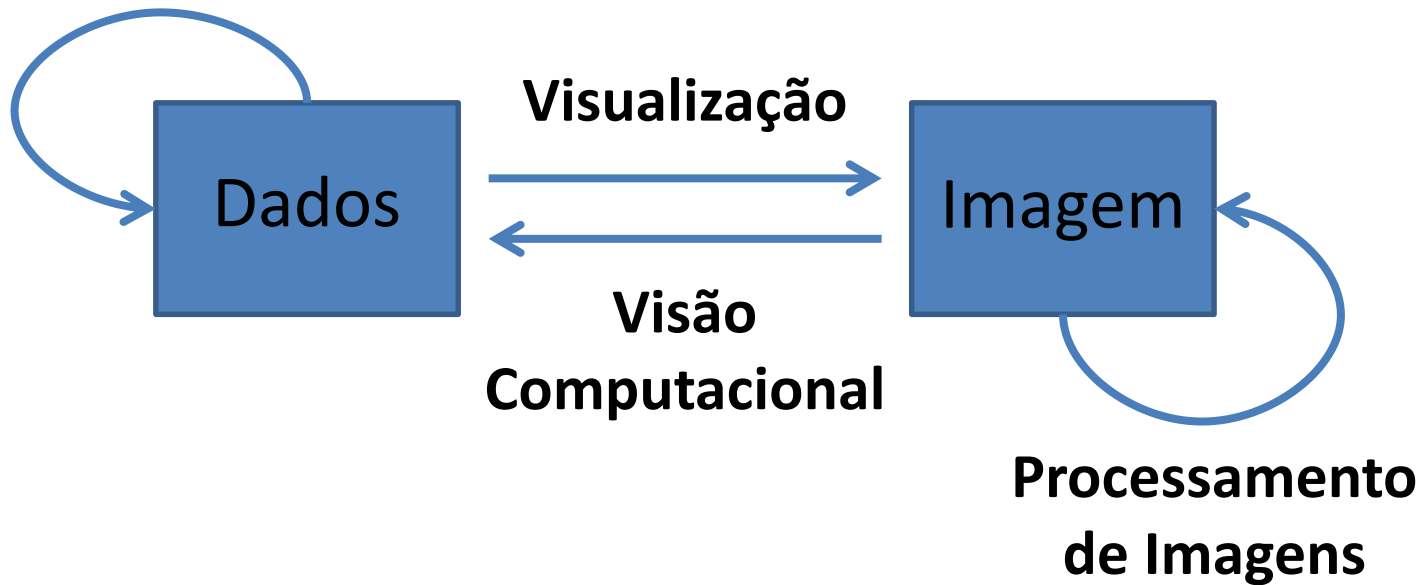
Imagem

Áreas da Computação Gráfica

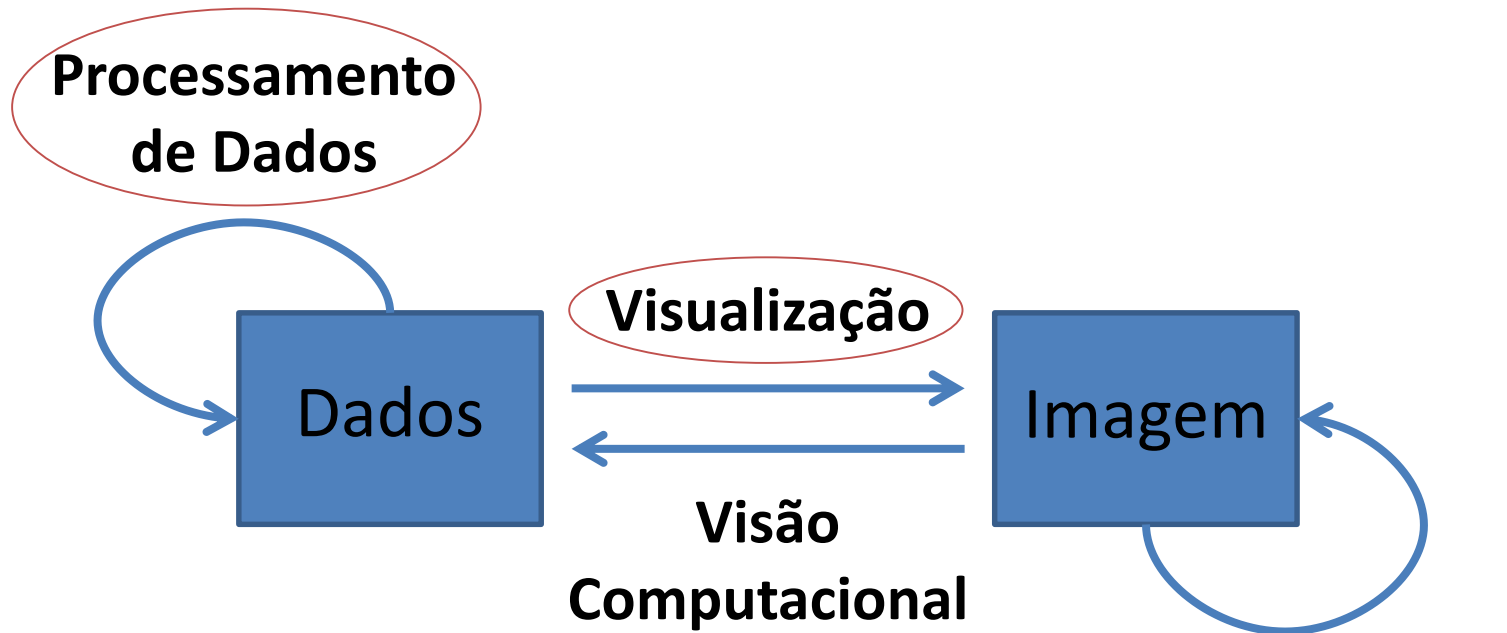


Áreas da Computação Gráfica

**Processamento
de Dados**

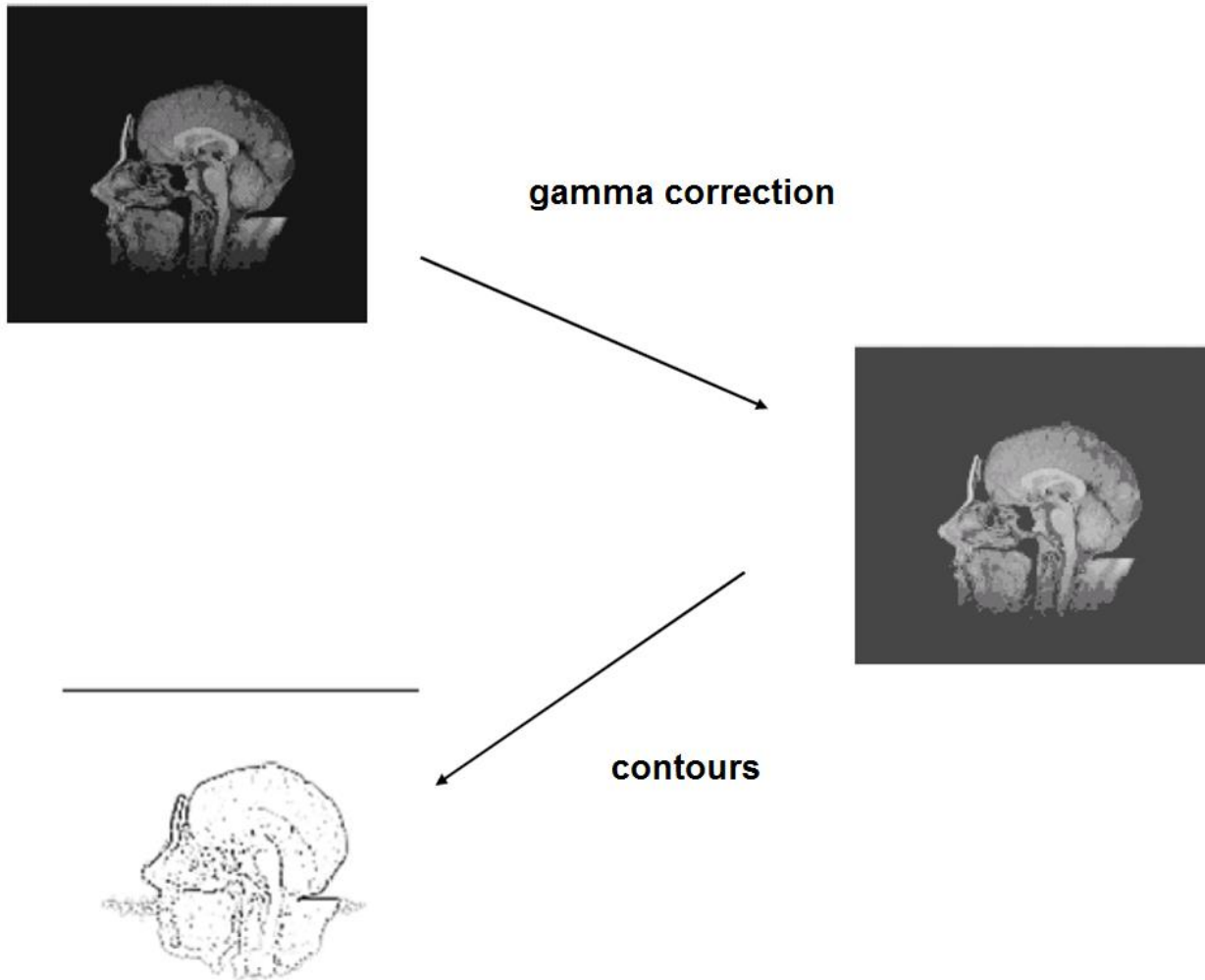


Áreas da Computação Gráfica



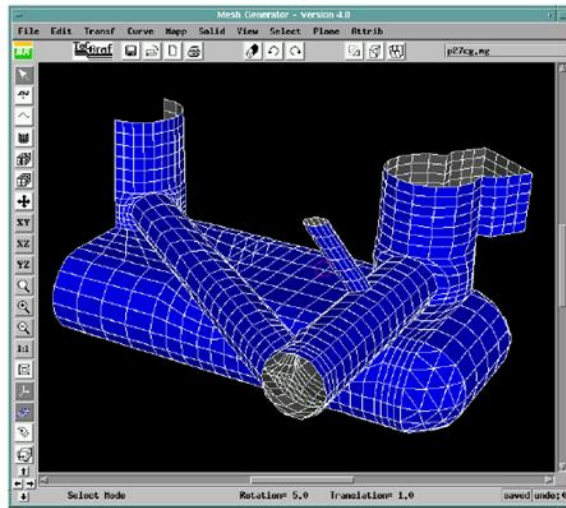
- Modelagem Geométrica
- Geração de Malhas
- Geometria Computacional
- Técnicas de Visualização (Pós-processamento)

Processamento de Imagens

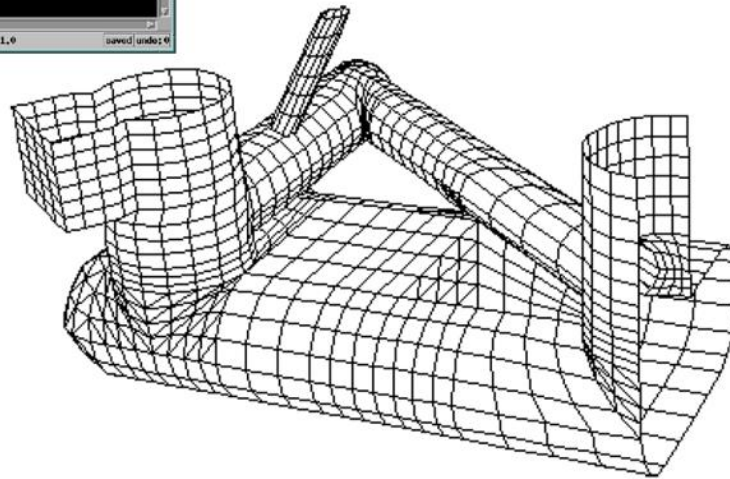


(Fonte: Prof. Marcelo Gattass, Notas de aula em Computação Gráfica, Departamento de Informática da PUC-Rio)

Processamento de Dados e Visualização



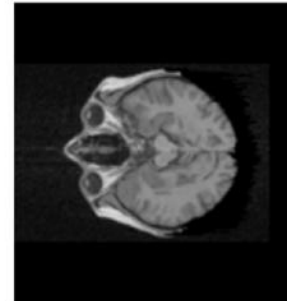
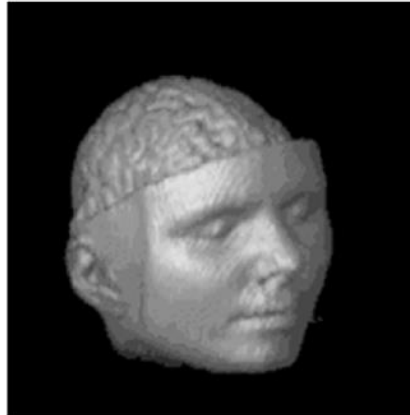
Engineering Design



(Fonte: Prof. Marcelo Gattass, Notas de aula em Computação Gráfica, Departamento de Informática da PUC-Rio)

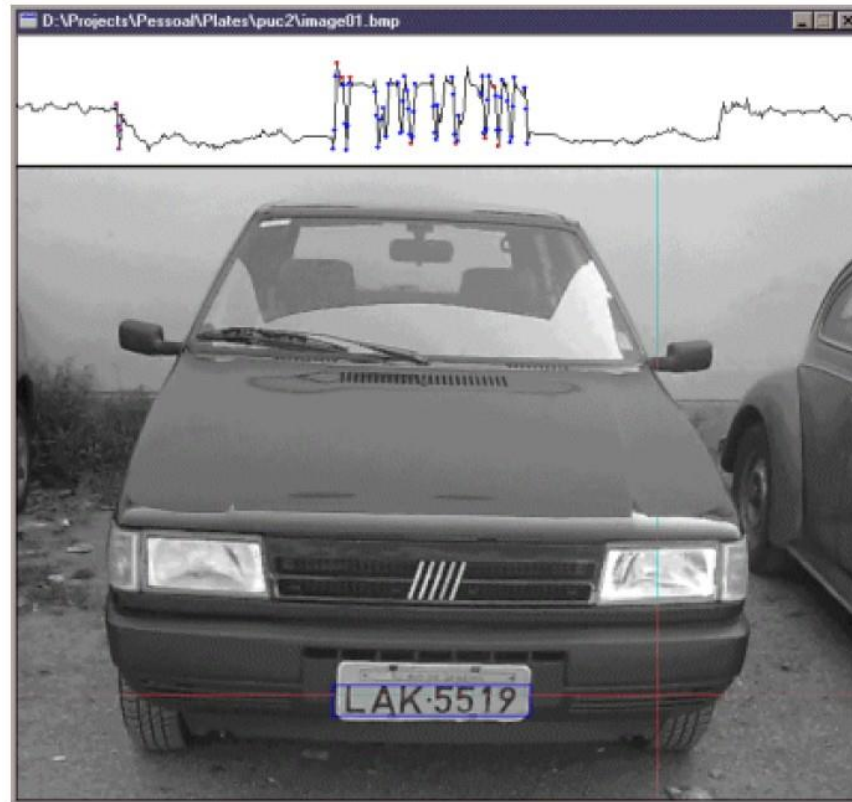
Visualização

Medicine



(Fonte: Prof. Marcelo Gattass, Notas de aula em Computação Gráfica, Departamento de Informática da PUC-Rio)

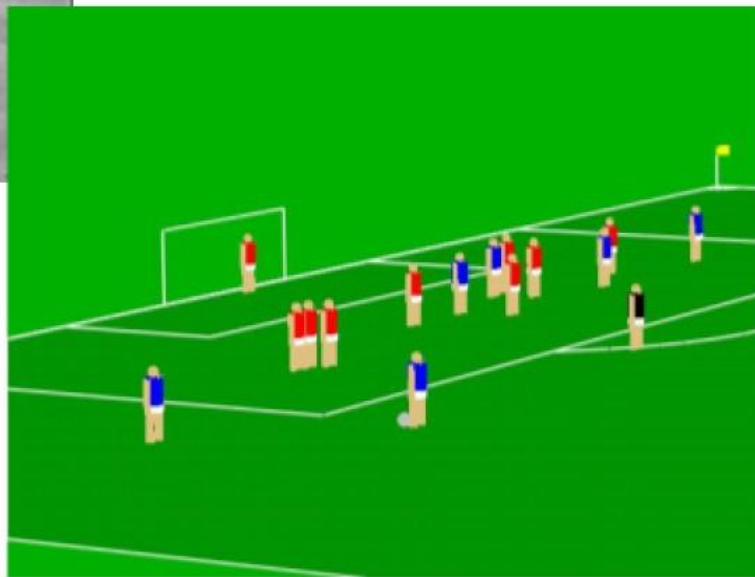
Visão Computacional



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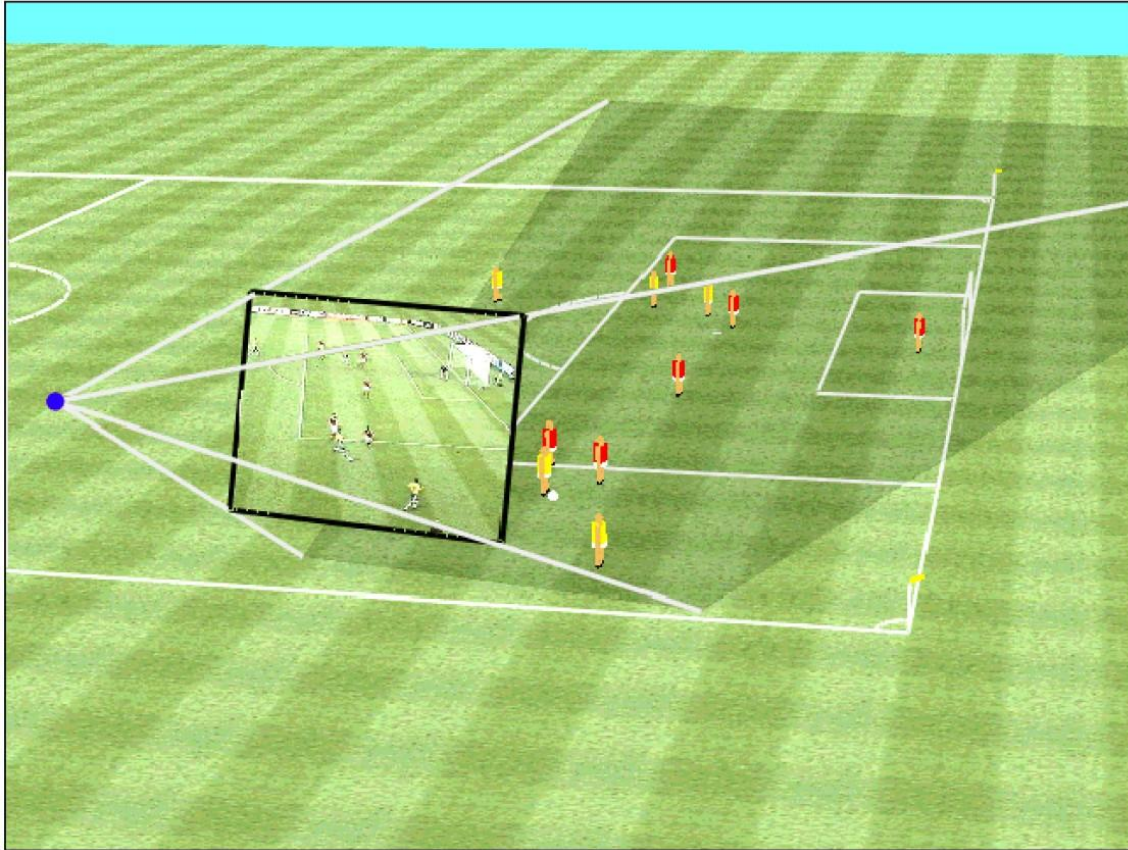
(Fonte: Prof. Marcelo Gattass, Notas de aula em Computação Gráfica, Departamento de Informática da PUC-Rio)

Visão Computacional



(Fonte: Prof. Marcelo Gattass, Notas de aula em Computação Gráfica, Departamento de Informática da PUC-Rio)

Visão Computacional



<http://www.tecgraf.puc-rio.br/juizvirtual>

<http://www.visgraf.impa.br/juizvirtual>

(Fonte: Prof. Marcelo Gattass, Notas de aula em Computação Gráfica, Departamento de Informática da PUC-Rio)

Profissionais da Computação Gráfica

Usuários:

Usam os programas para produzir desenhos e imagens.

Customizadores:

Configuram, adaptam e estendem programas

Programadores de aplicativos:

Desenvolvem aplicativos gráficos (AutoCAD, Corel, ...)

Desenvolvedores de ferramentas:

Desenvolvem as bibliotecas básicas (OpenGL, DirectX, ...)

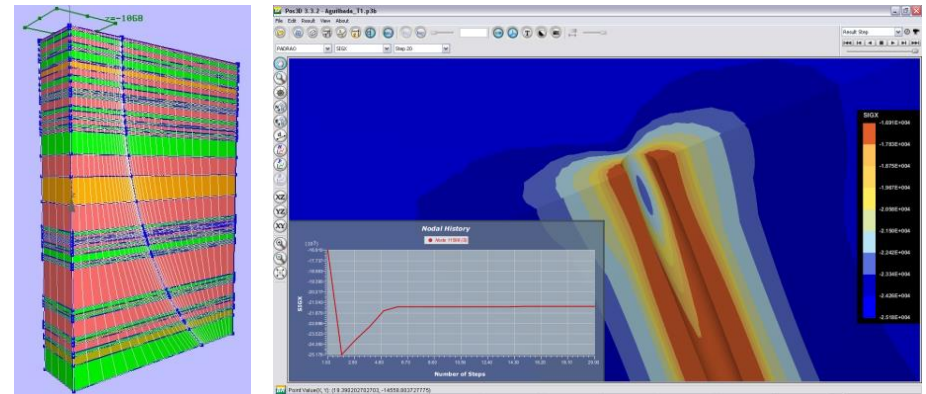
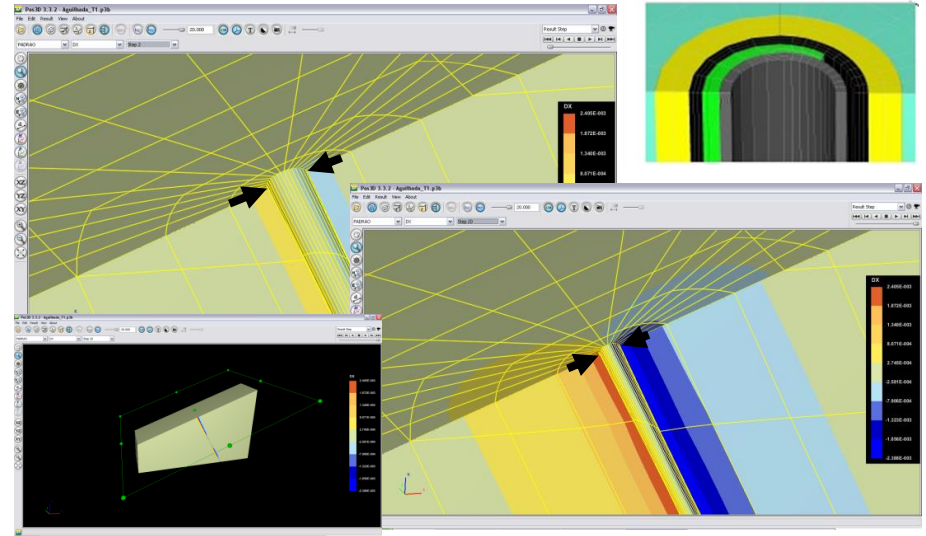
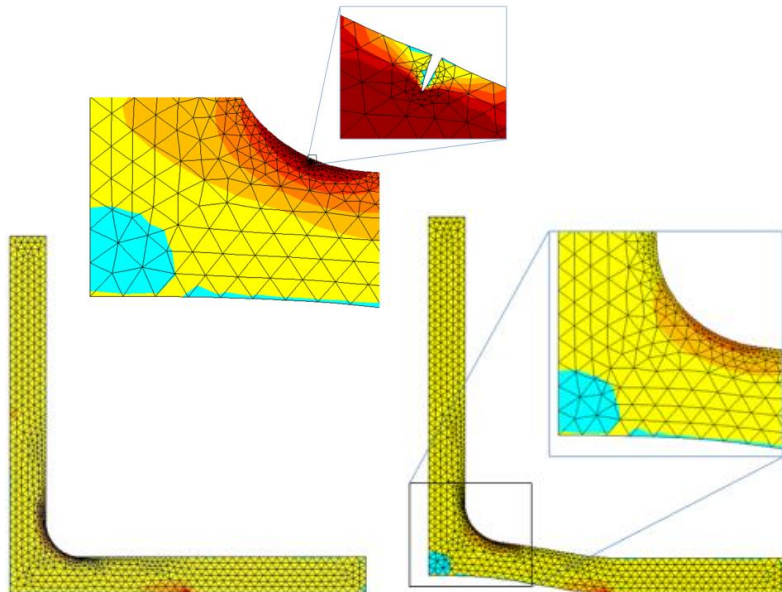
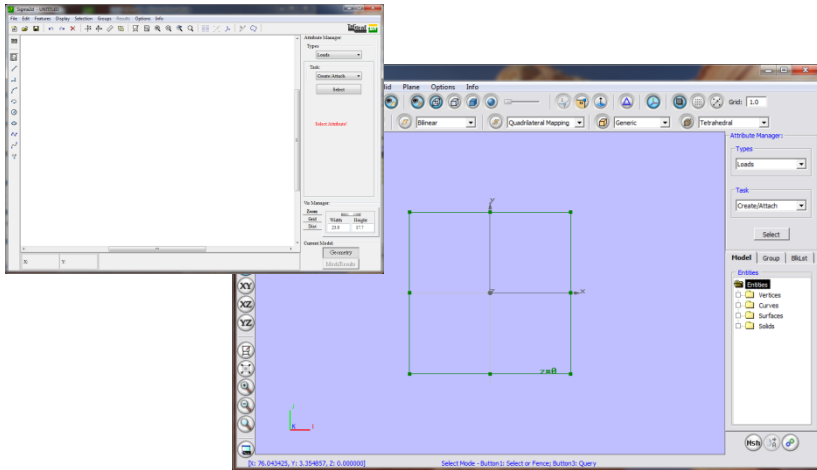
Por que estamos interessados neste assunto?

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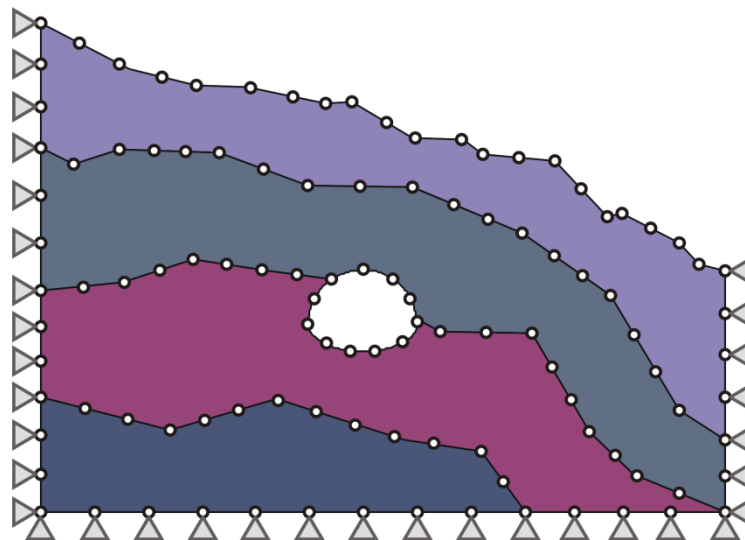
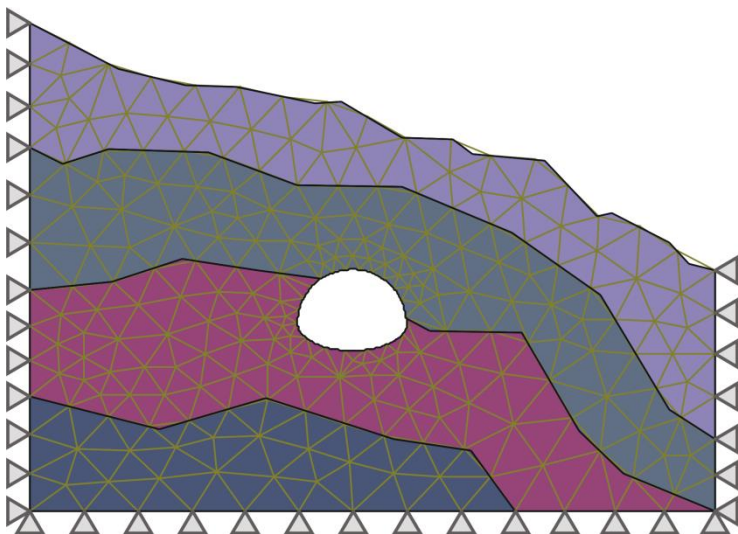
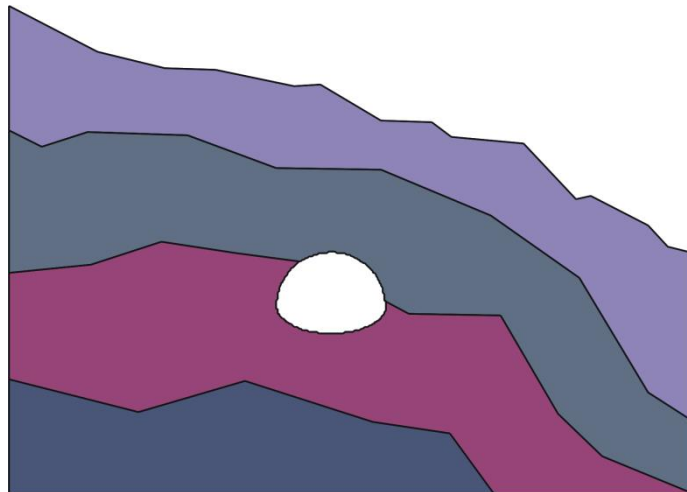
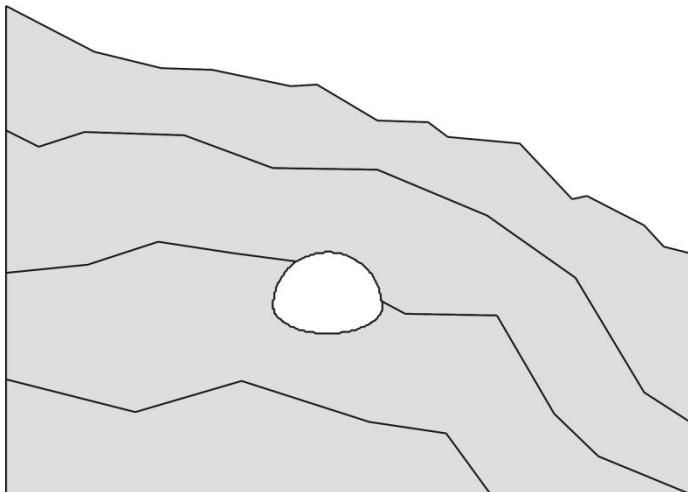
Simulações Numéricas

Mecânica Computacional

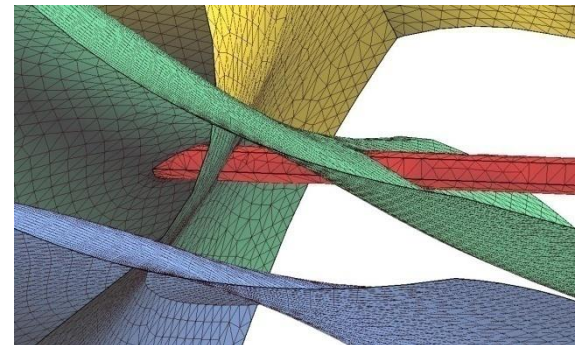
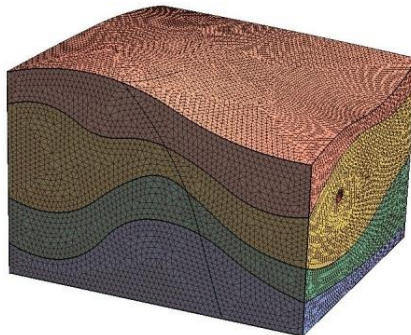
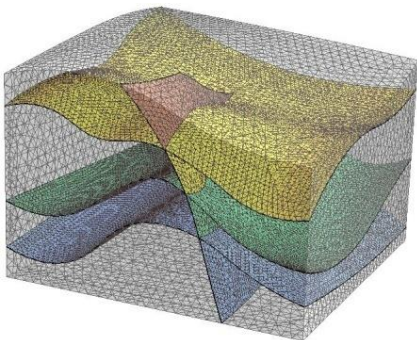
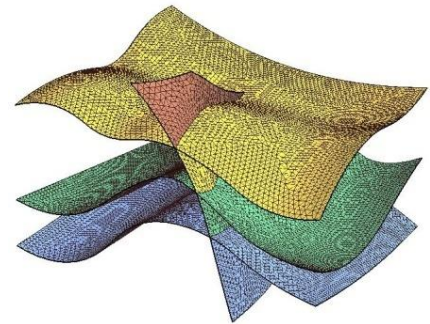
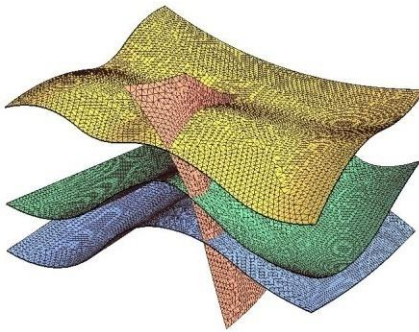
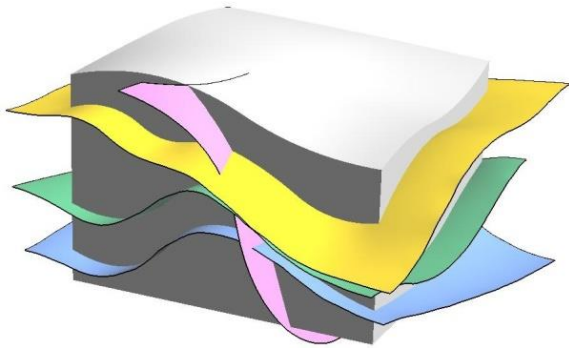
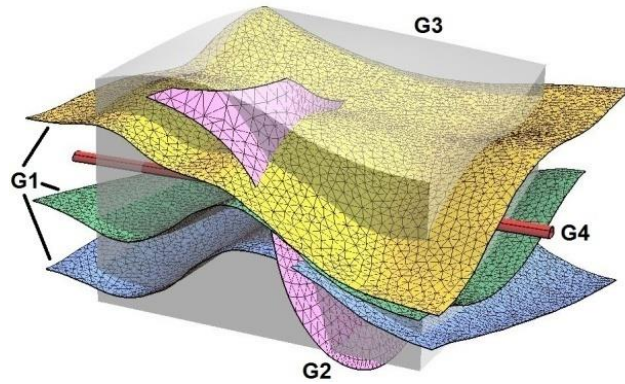
Interesse em...



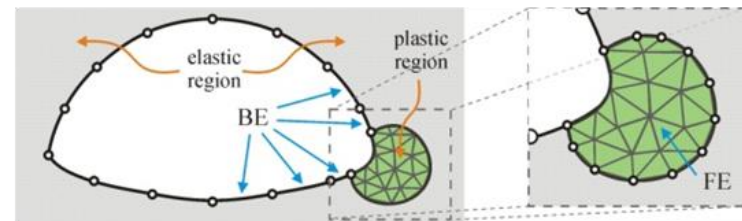
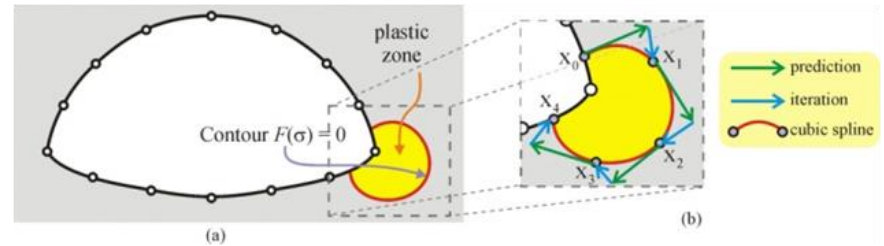
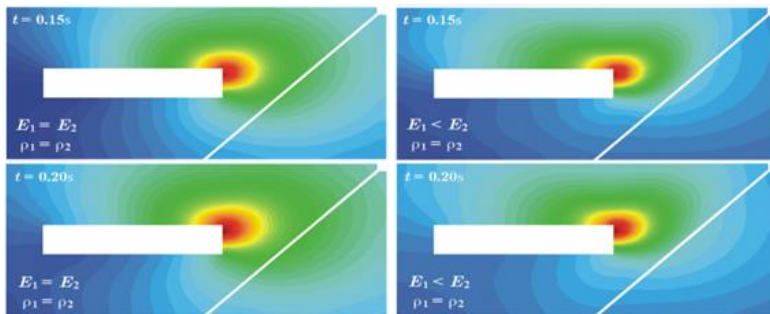
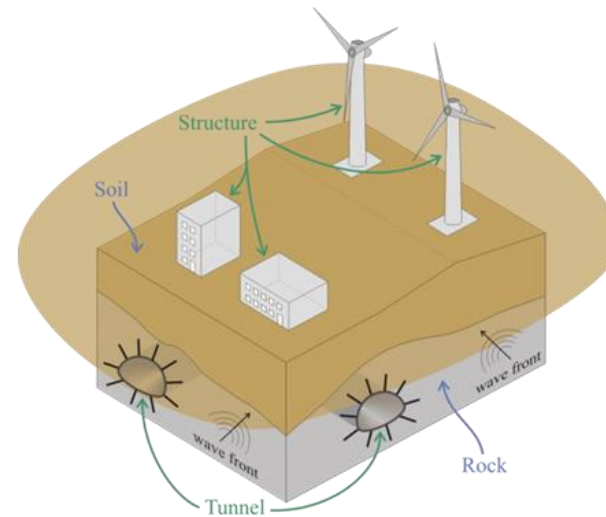
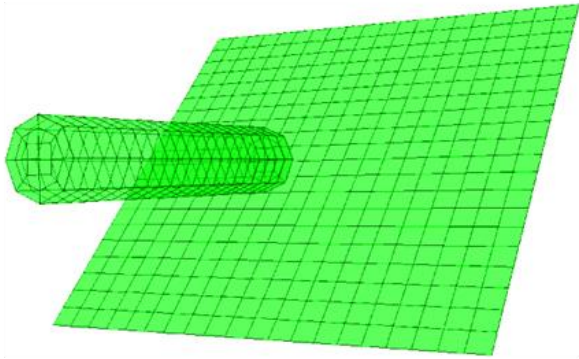
Interesse em...



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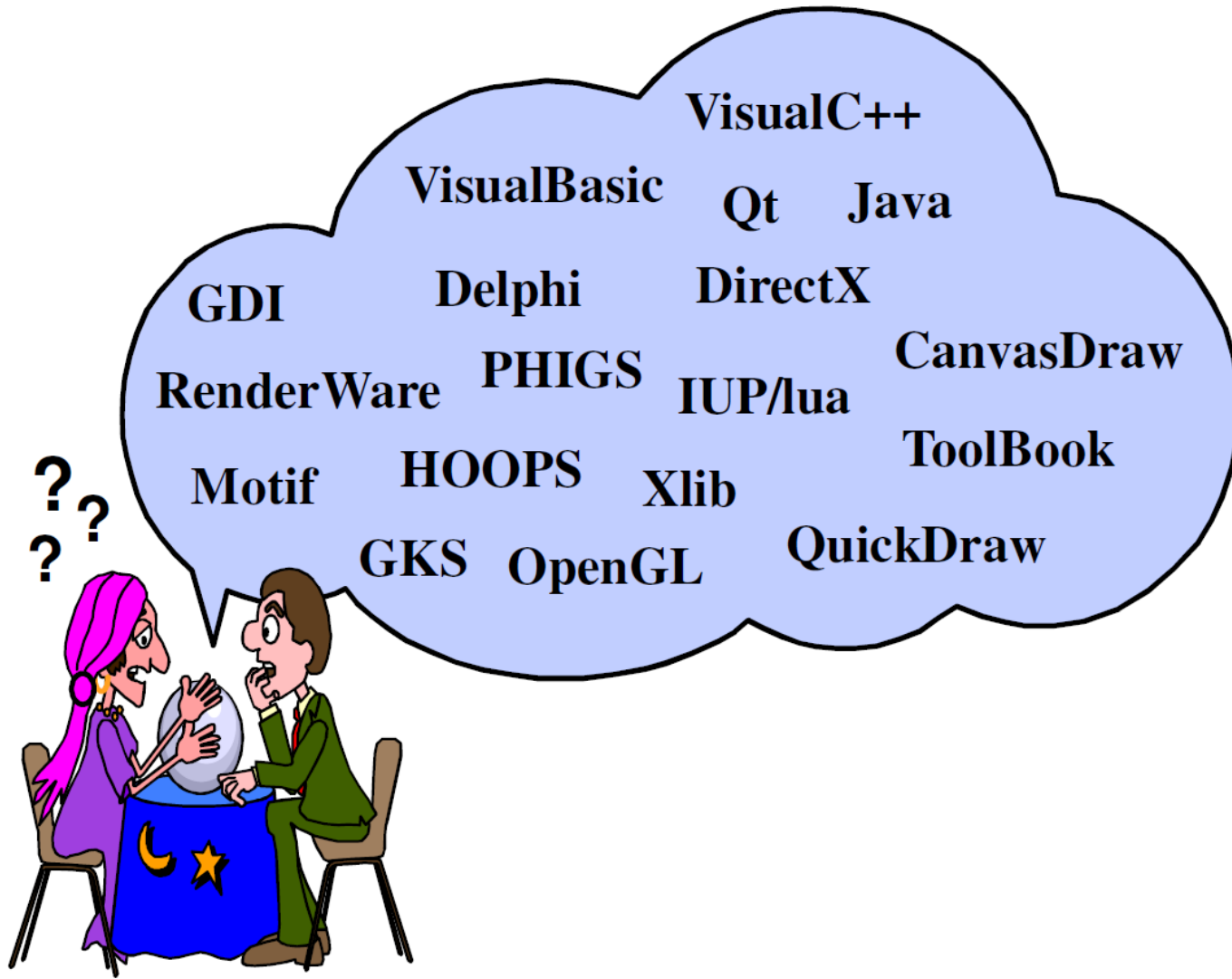


Interesse em...



Como desenvolver em Computação Gráfica?

IDEs, Compiladores, Bibliotecas e
Ferramentas



Ambiente de Desenvolvimento



Ambiente de Desenvolvimento



**Python is powerful... and fast;
plays well with others;
runs everywhere;
is friendly & easy to learn;
is Open.**

These are some of the reasons people who use Python would rather not use anything else.



Python is a programming language that lets you work more quickly and integrate your systems more effectively.

You can learn to use Python and see almost immediate gains in productivity and lower maintenance costs.

Ambiente de Desenvolvimento



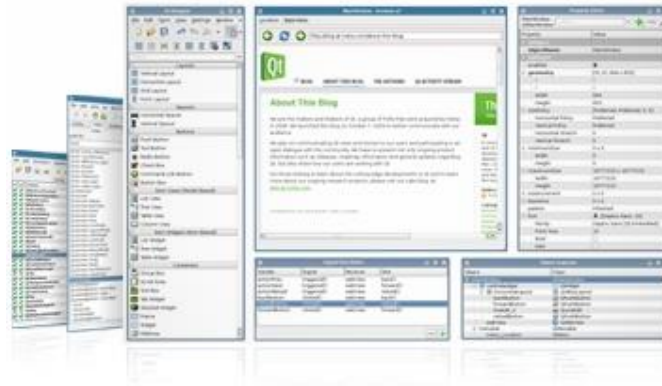
Visual Studio Code



Ambiente de Desenvolvimento



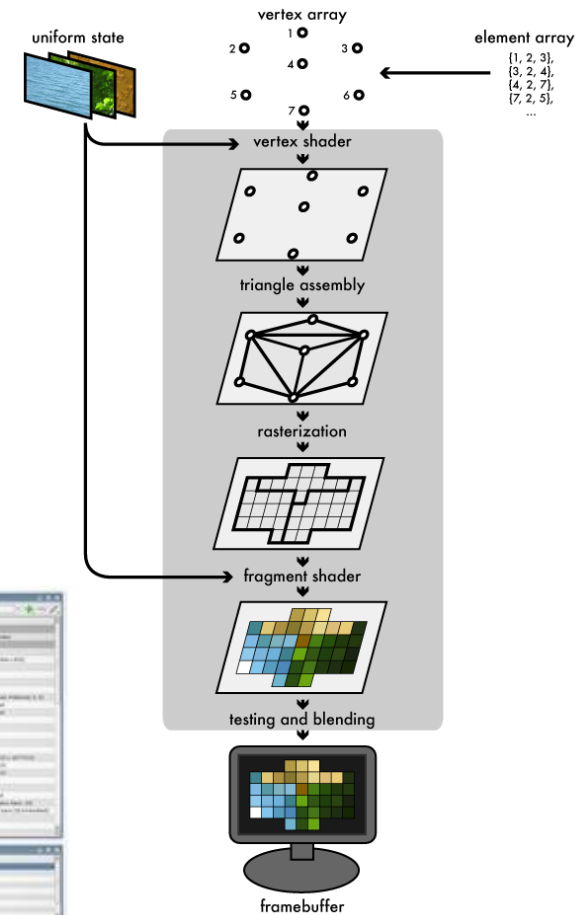
Visual Studio Code



Ambiente de Desenvolvimento



Visual Studio Code



Bibliotecas Gráficas

Sistemas operacionais e interface com usuário:

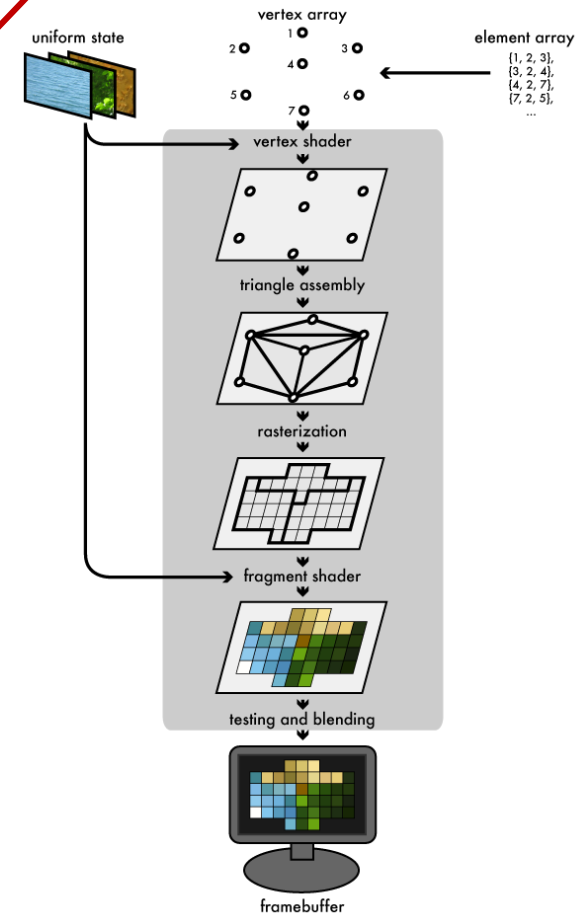
1984-Macintosh
1987-XWindow v.11
1988-Motif
1990-Windows 3.0
1993-Visual Basic v.3
1995-Delphi
1995-Windows 95
1996-Java
1999-Windows NT

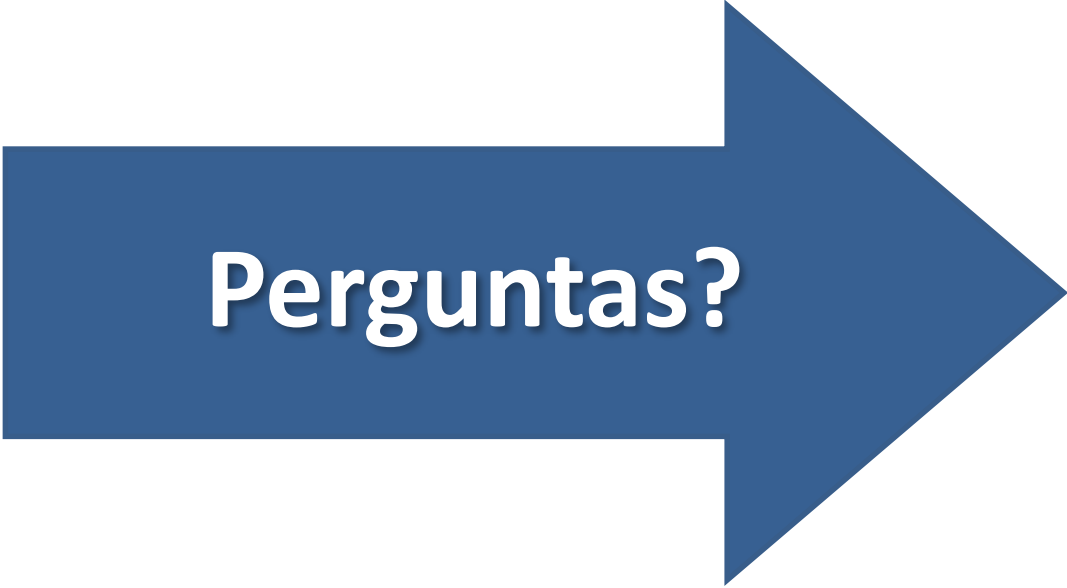
...
2008-Qt



Gráficas:

1978-core
1985-GKS
1988-PHIGS
1990-PEX
1991-GL
1993-OpenGL
1996-Direct 3D





Perguntas?