

Computer graphics

Introduction

Topics

- Introduction
- Applications
- Conceptual Framework

Course material

- Reference Book :
- Donald Hearn , M Pauline Baker,: Computer Graphics: Principles and Practice” 2nd Edition.
- Van Dam, Foley, Feimer, Hugher, “Computer Graphics: Principles and Practice in C” Addison Wesley
- Edward S Angel, Dave Shreiner,” Interactive Computer Graphics using OpenGL: A top-down Approach”, Pearson Higher Education.

What computer graphics?

- It is very hard to give a precise definition.
- Anything which isn't text or sound on a computer.
- **Typically means**
- Display
- Manipulation
- Storage of pictures and experimental data
For visualization purpose.

Why computer graphics?

- **Dept. has included it as a part of B.Tech curriculum.**
 - Corollary: We need those 4 credits!

- **Will it help you to get placed?**
 - May be.

- **Will it help you to get into good universities?**
 - GATE-No
 - Applying to universities- will help

- **So what else?**

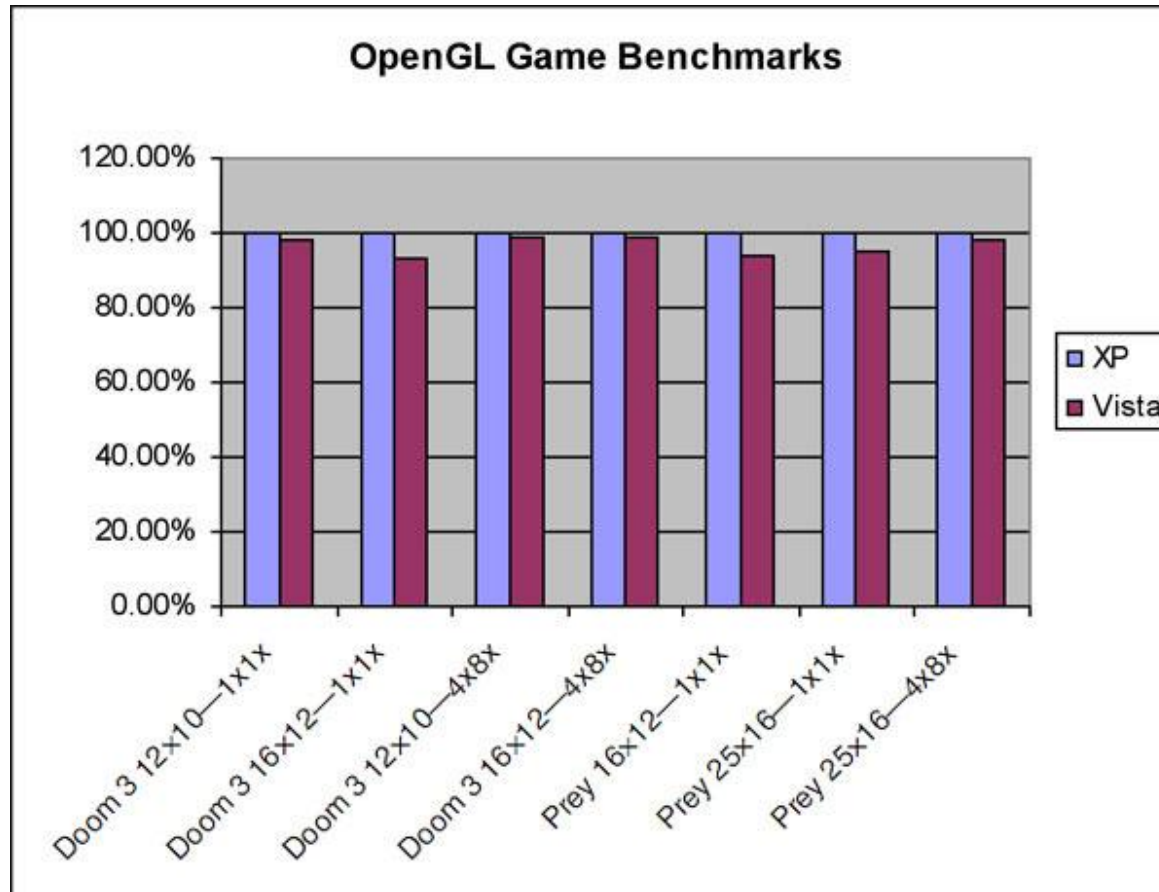
Why computer graphics?

- Fun! Visible!
- Everywhere
- Visual system offers:
 - Parallel input
 - Parallel processing
- Computer graphics: ideal for human-computer communication

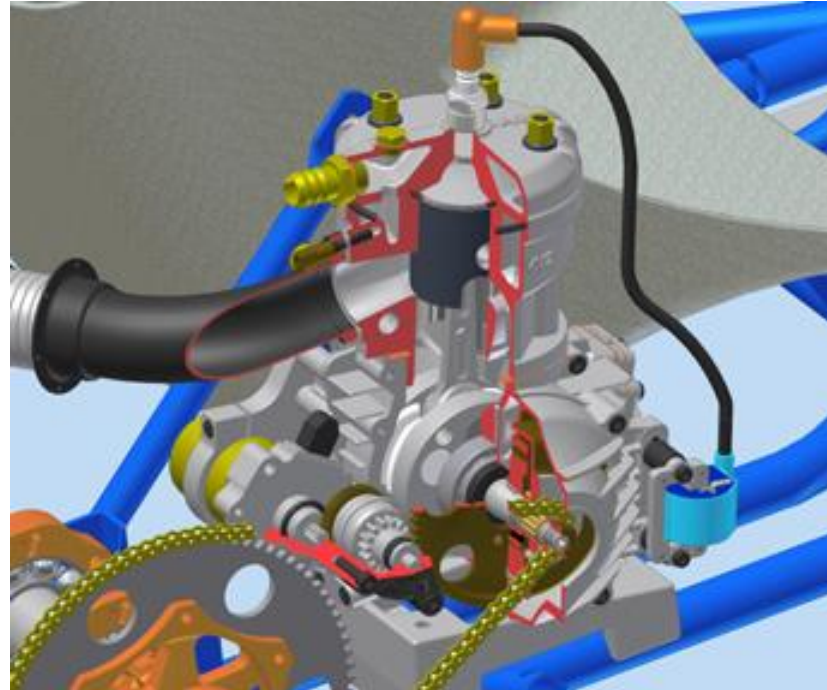
Applications

- Graphs and charts
- Computer-Aided Design
- Virtual Reality
- Data Visualization
- Education and training
- Computer Art
- Movies
- Games
- Graphical User Interfaces

Business graphics

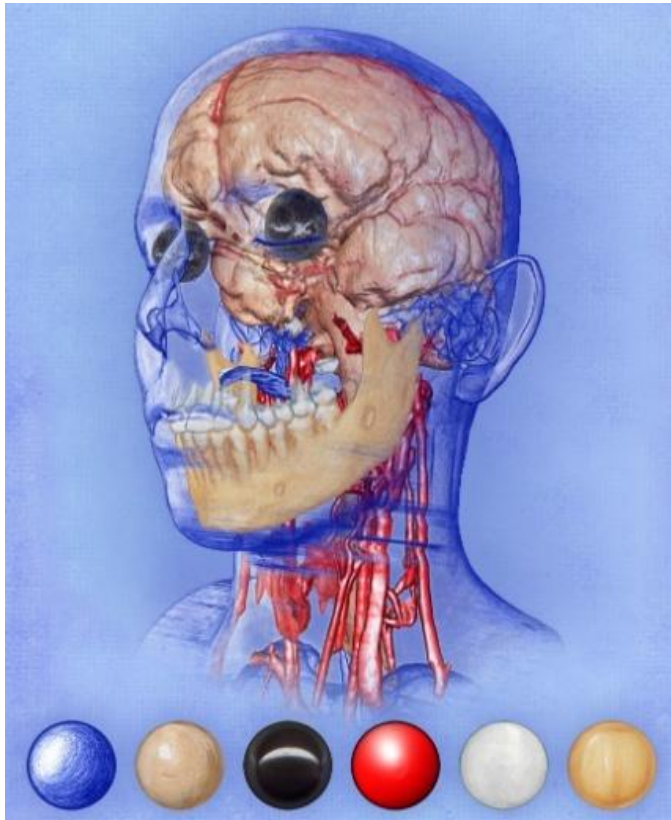


Computer-Aided Design

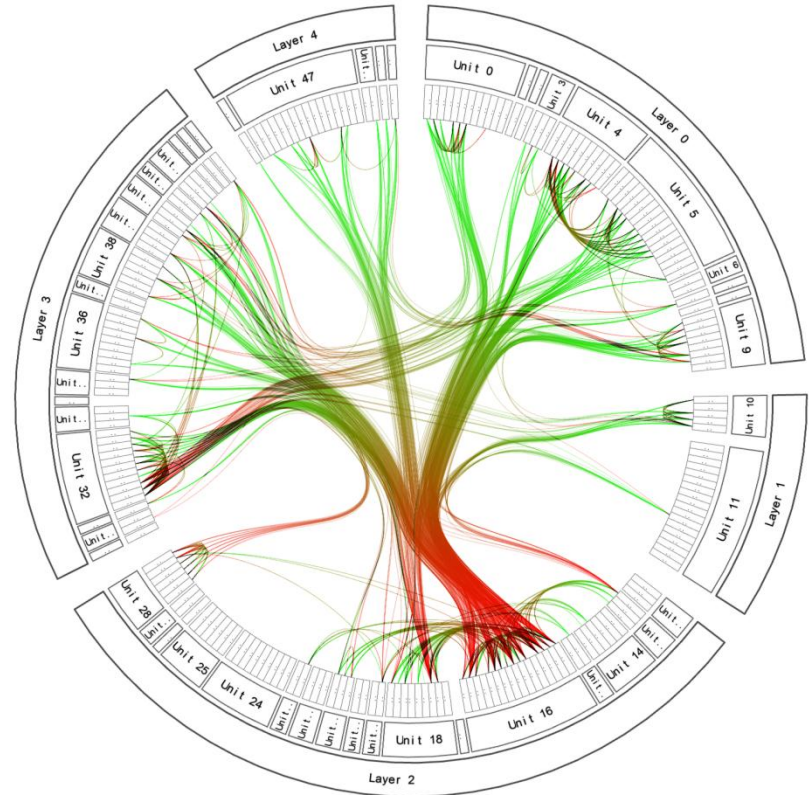


- AutoDesk
- IAME 2-stroke race kart engine

Data Visualization



Bruckner and Groeller,
TU Vienna, 2007



Holten, TU/e, 2007

Entertainment



Entertainment



Figure: (a).Geri's Game. (b) How to train your Dragon (c) Ice Age:Continental Drift

Games

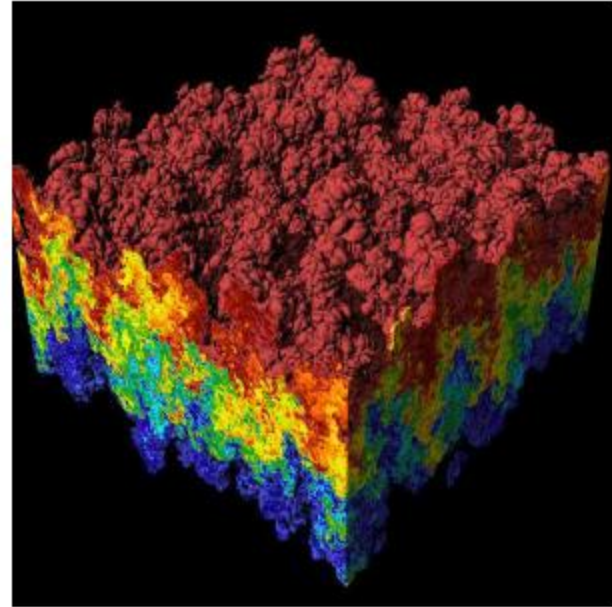
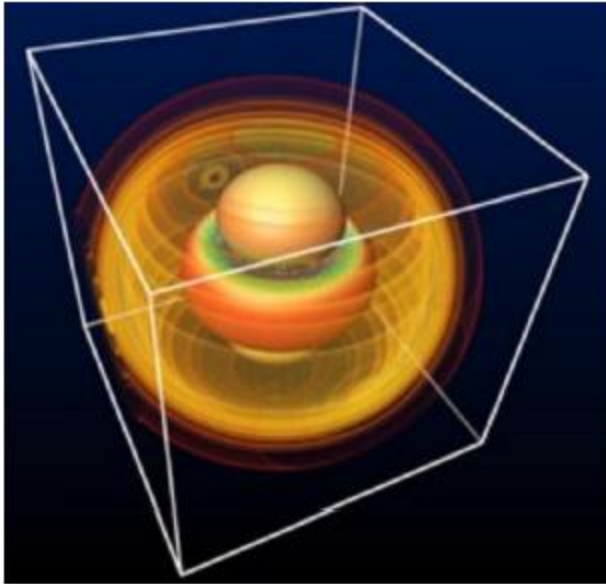


Games



Figure: (a).Counter Strike. (b) Max Payne 3 (c) Wrath of the Lich King

Scientific Visualization



Scientific Visualization

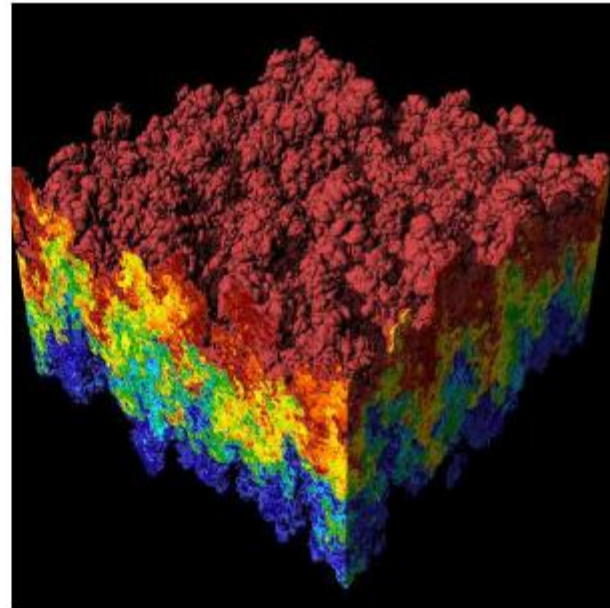
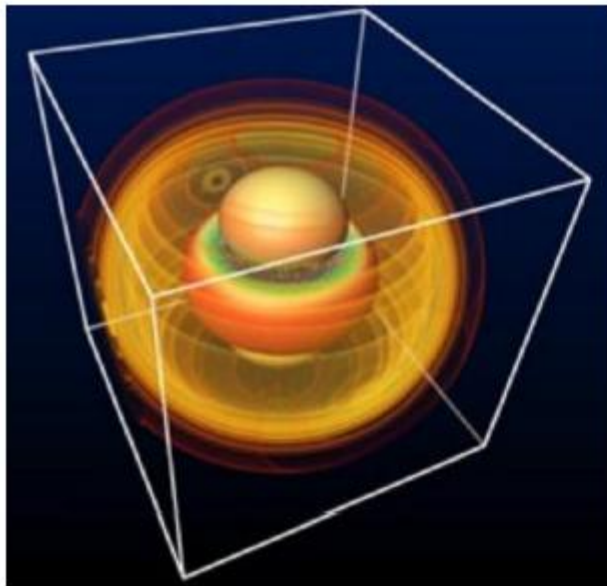


Figure: (a).Gravity Waves. (b) Rayleigh-Taylor Instability

Molecular Modelling

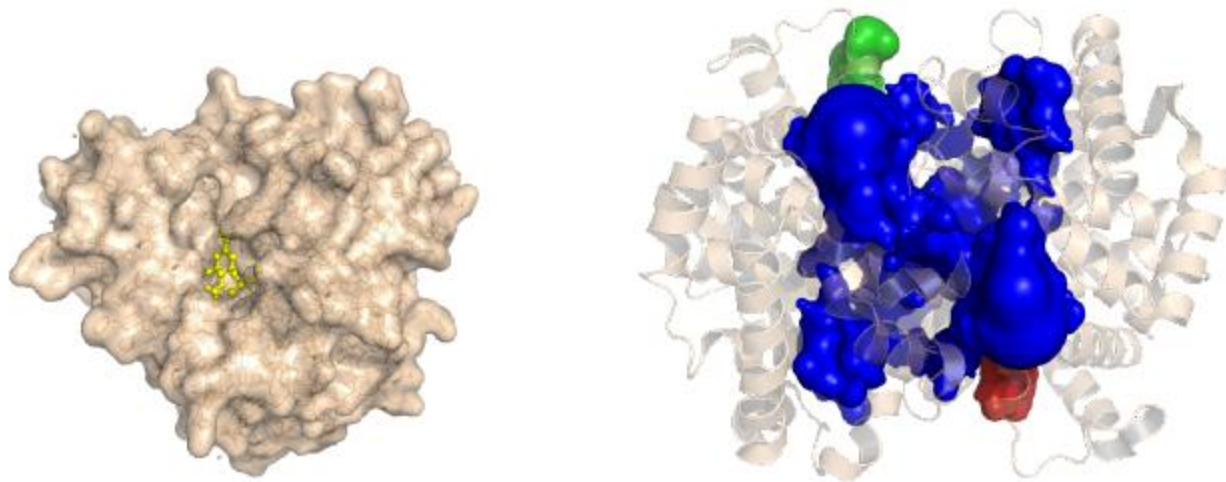


Figure: (a).Molecule with its cavity. (b) high affinity R state (1BBB) of Hemoglobin

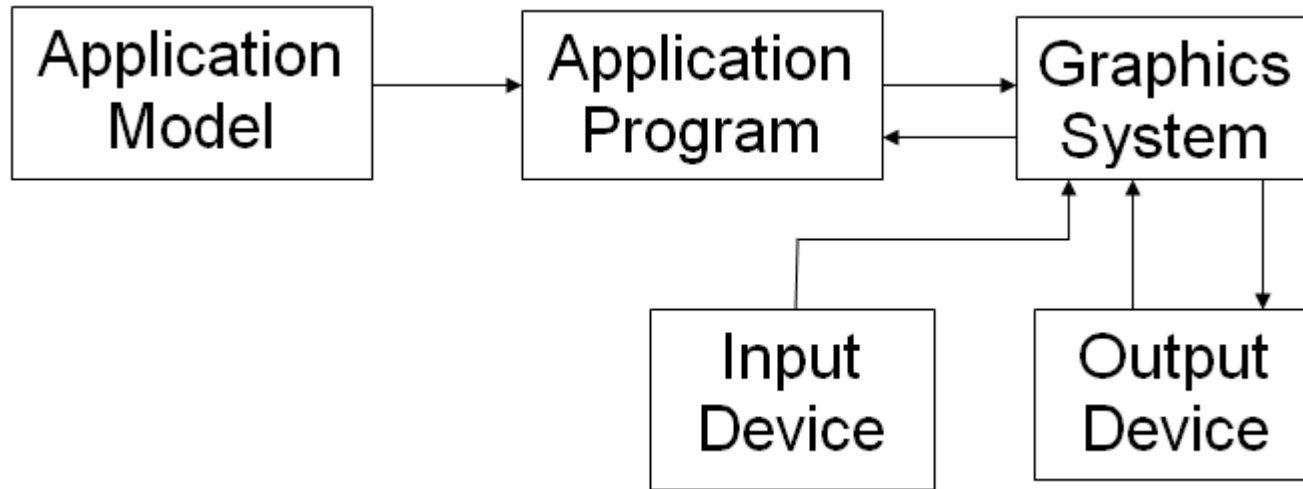
Virtual Reality



Graphics system comprises of?

- Host computer with
Fast Processor, Large memory, Frame buffer
- Display device- monitors
- Input devices- Keyboard, mouse
- Output devices- LCD panel, laser printers, color printers, plotters

Conceptual Framework of Interactive graphics



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