BRIEF HISTORY OF COMPUTER GRAPHICS AND HUMAN-COMPUTER INTERACTION

A Computer Scientist's Odyssey

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MY INTERESTS

- ▶ Human-Computer Interaction (HCI): Interface Design, Tele-collaboration & Telepresence
- ▶ Computer Graphics: Rendering, 3D Graphics, Image Processing, Medical Visualization
- ▶ Depth Sensing Cameras
  - ▶ Kinect, Intel's Creative, Google's Tango Project, Leap Motion
- ▶ Augmented Reality & Immersive Virtual Reality
  - ▶ Eyewear, HMD's, Novel interfaces
- ▶ Some links:
  - ▶ https://www.youtube.com/watch?v=GpmKq_qg3Tk
  - ▶ https://www.youtube.com/watch?v=YrtANPtnhyg
  - ▶ http://www.wikitude.com/products/wikitude-sdk/

THE ODYSSEY

- ▶ Computer Evolution:
  - ▶ Commodore-64, with 32978 bytes free of RAM!, IBM PC/OS, Unix, Silicon Graphics Workstations, SUN SPARC, NVIDA& ATI GPUs, Smartphones
- ▶ Language Evolution:
  - ▶ Basic, Pascal, Prolog, LISP, C/C++, Visual Basic, Java, OpenGL, Shading Languages, Libraries
- ▶ Graphical User Interface Evolution:
  - ▶ From Command-line to Games, GEOS, Java Swing, 3D Graphis & 2D Graphis,
- ▶ Device Evolution:
  - ▶ From the CAVE to 3D Glasses, Smartphones, Depth-Sensing Cameras, HMDs and the Oculus Rift.
- ▶ Storage Evolution
  - ▶ From 64Kbytes of RAM to 6 TB of Ram in a HardDrive.
  - ▶ My largest portable memory has a million times the storage capacity of my first computer
  - ▶ Existing commercial hard drives have the capacity of a ~100 64GB cards.

GRAPHICS AND HCI

- The past:
  - What were the visionaries of the past imagining for HCI?
  - What were the aspirations of the early researchers of HCI?
  - What were the visionaries of the past imagining for Computer Graphics?
  - What were the aspirations of the early researchers of Computer Graphics?

GRAPHICS AND HCI – THE PAST

- ▶ Tell us what you know about the past:

GRAPHICS AND HCI

▶ The past:

- ▶ What were the visionaries of the past imagining for HCI?
- ▶ -Voice recognition/ voice commands/control
- ▶ -Graphical User Interfaces
- ▶ -Data Glove / Power Glove
- ▶ -Robotic Assistance
- ▶ -Augmented Reality
- ▶ -For medical: Fine movement control
- ▶ -Motion control: Kinect
- ▶ -Holograms
- ▶ -VR headsets
- ▶ -Star Trek 's Holodeck
- ▶ -Hover boards/back to the future
- ▶ Reply: The OneWheel https://www.youtube.com/watch?v=owlB85rqcQM

- ▶ What were the aspirations of the early students of HCI?

GRAPHICS AND HCI

- ▶ The past:
- ▶ -Desktop/Personal computer
- ▶ -Touchscreen envisioned
- ▶ -Virtual Reality
- ▶ -Voice commands
- ▶ -Improving Quality of Graphics
- ▶ -Motion control type of gestures / moving your hand
- ▶ -Only accessible for academics & researchers: scientific computing
- ▶ Present/Future:
- ▶ -Having screens everywhere

GRAPHICS AND HCI

- The present:
  - What can we already do?
  - What can you already do that looks futuristic?
  - Can you program in new interfaces?

GRAPHICS AND HCI – THE PRESENT

- Discuss your knowledge about the present:

GRAPHICS AND HCI

▶ The future:

    ▶ What is coming?/ What do you know about the future of GRAPHICS & HCI?

    ▶ Do we have an agreement about what is to come?

    ▶ Are we prepared?

    ▶ What are going to be our "computers" of the future, the technology we cannot yet comprehend?

GRAPHICS AND HCI – THE FUTURE

▶ Write your thoughts on the future: