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3D Realisation of Cultural Heritage UNESCO world heritage site in Saltaire, Bradford.

Virtual Heritage 2010.

A joint Science & Heritage Cluster & VRLink workshop for Industry, Charities and Institutions to discuss Virtual Reality techniques and ideas for Science and Heritage applications. 22-23 March 2010

Technium CAST, Parc Menai Business Park, Bangor, UK.

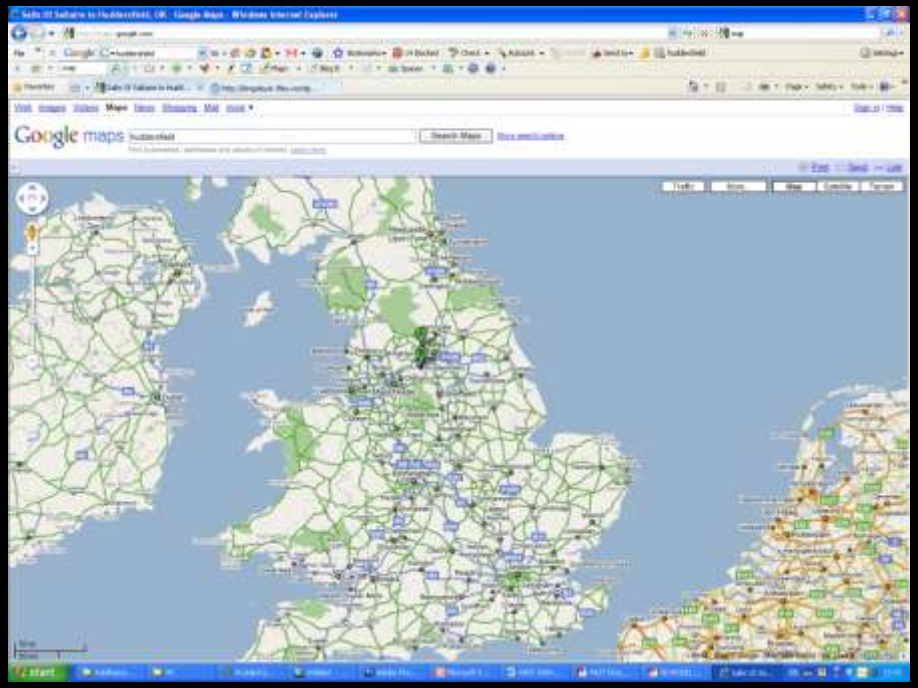
Dr. Ertu Unver.
Andrew Taylor.
School of Art, Design & Architecture, University of Huddersfield

This presentation is given at the Virtual Heritage 2010, Bangor, UK.
The team is invited to present the progress of the current research & development in the 3D Digital Heritage visualisation project based on UNESCO world Heritage site at Saltaire in West Yorkshire UK.

The aim of this presentation outlines the research and development of a 3D interactive Saltaire UNESCO world heritage site, in Saltaire, near Bradford, West Yorkshire, UK. This on going project has investigated the history of Saltaire, textiles industrialisation in the 19th century and application of advance 3D tools. The interactive 3D virtual environments currently being created will immerse the visitors by experiencing how people dressed and lived, how the machinery operated, and to better understand industrialised environmental conditions and culture in the 19th century model village of Saltaire.

Images show BA(Hons) design student projects, mill buildings, character modelling and creation of virtual environments.

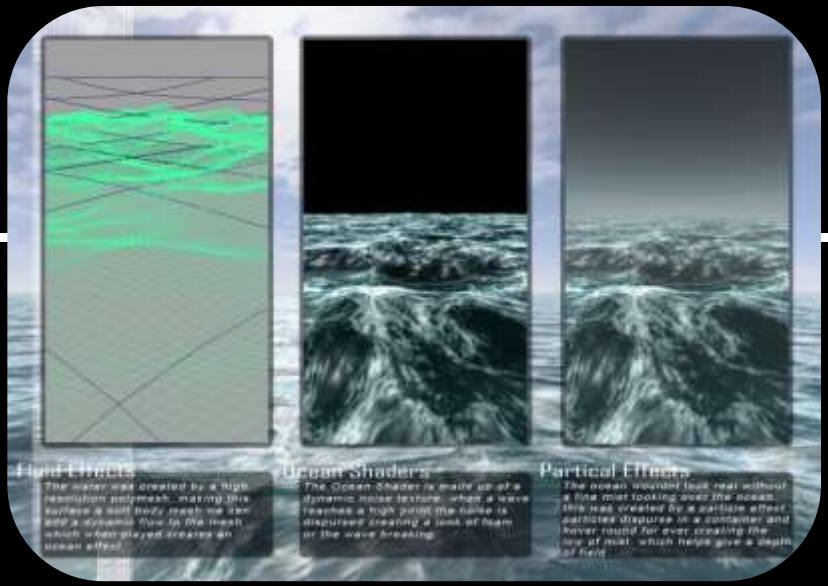
University of Huddersfield, School of Art, Design & Architecture

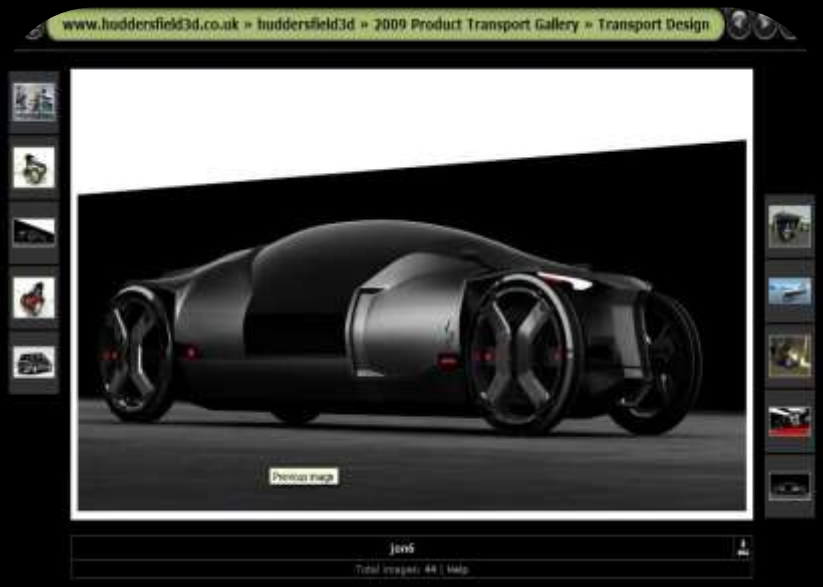


Huddersfield is located in the Pennines in West Yorkshire close to Bradford, Leeds and Manchester. Virtual University of Huddersfield campus created by the team demonstrates potential of 3D modelling, rendering and interactivity.

Art, design & architecture

Historical textiles industry design and manufacture skills.
Disappearing textile heritage and archiving the past for future culture.





3D Digital Design. BA(Hons) Product Design & BA (Hons) Transport Design projects
http://www.youtube.com/watch?v=5c8uqL7kJyo

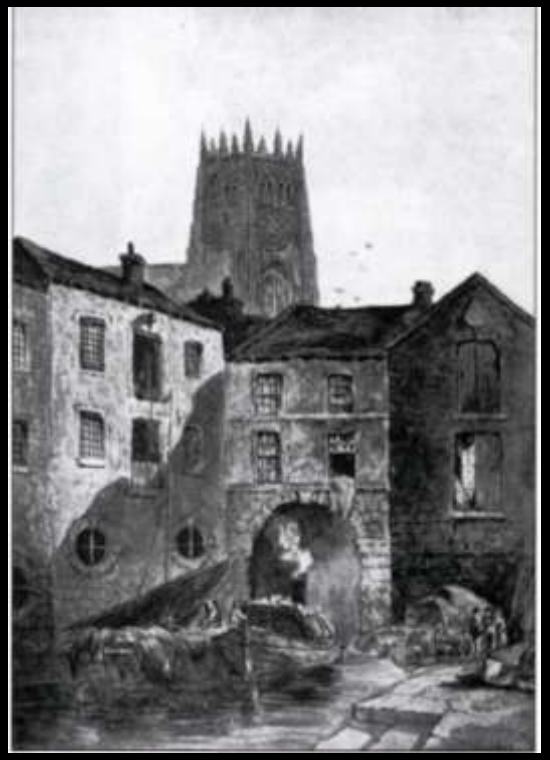
3D Digital Design.

Realistic 3D animation demonstrating environment, and real world physics
http://www.youtube.com/watch?v=1j97TFvoNRQ

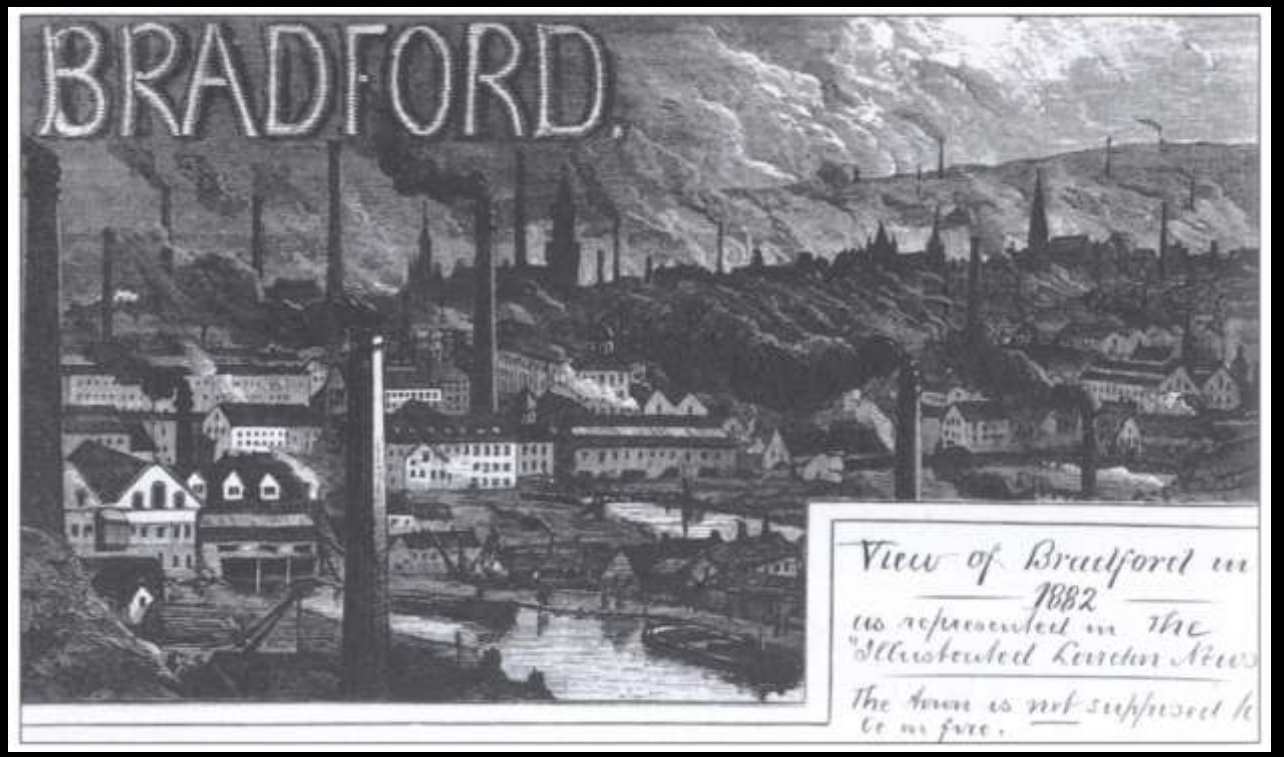
Industrial heritage across West Yorkshire is changing

Industrialised Development of Textile industry in Britain

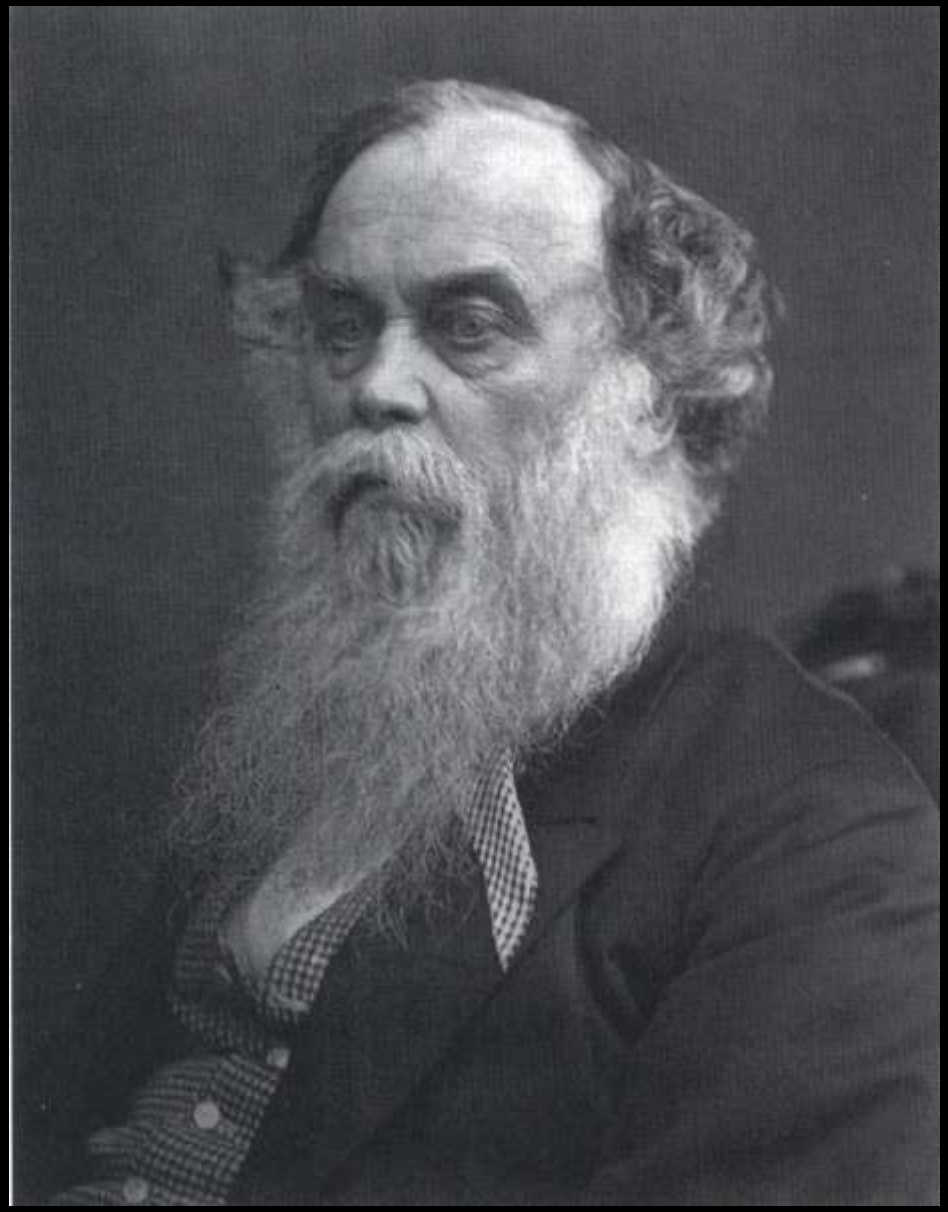
C.1840



C.1882

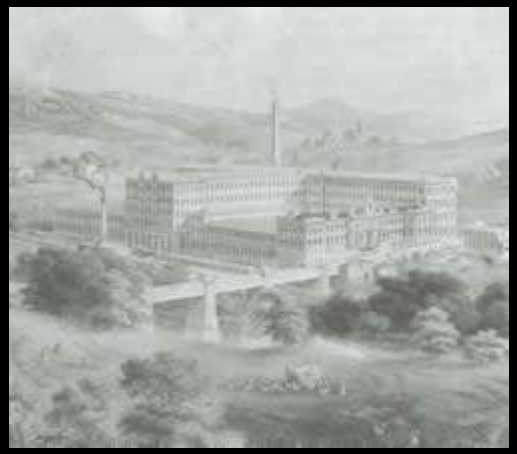


Sir Titus Salt and Saltaire life in 19th Century



Saltaire in 19th and 21st Century

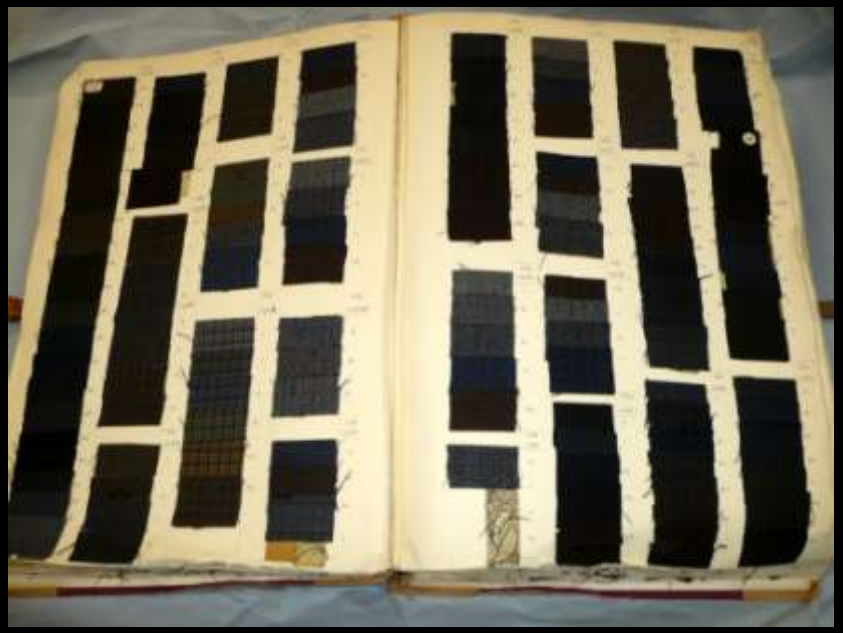
1853



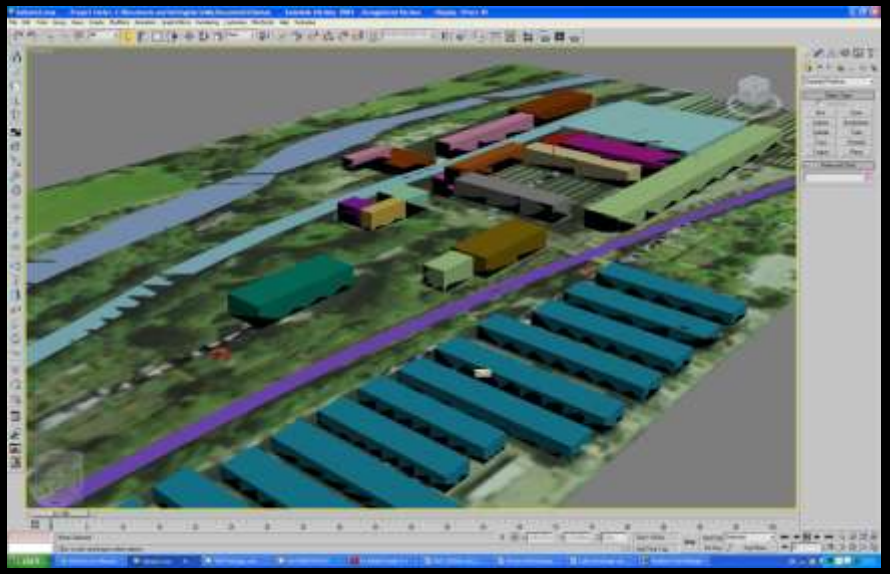
2009

Recent photographs taken in Saltaire 2010. Showing main mill building and residential areas

Archive research into textiles local history. Textile machinery in trade journals and textile sample books. Sourced from University archive & special collections



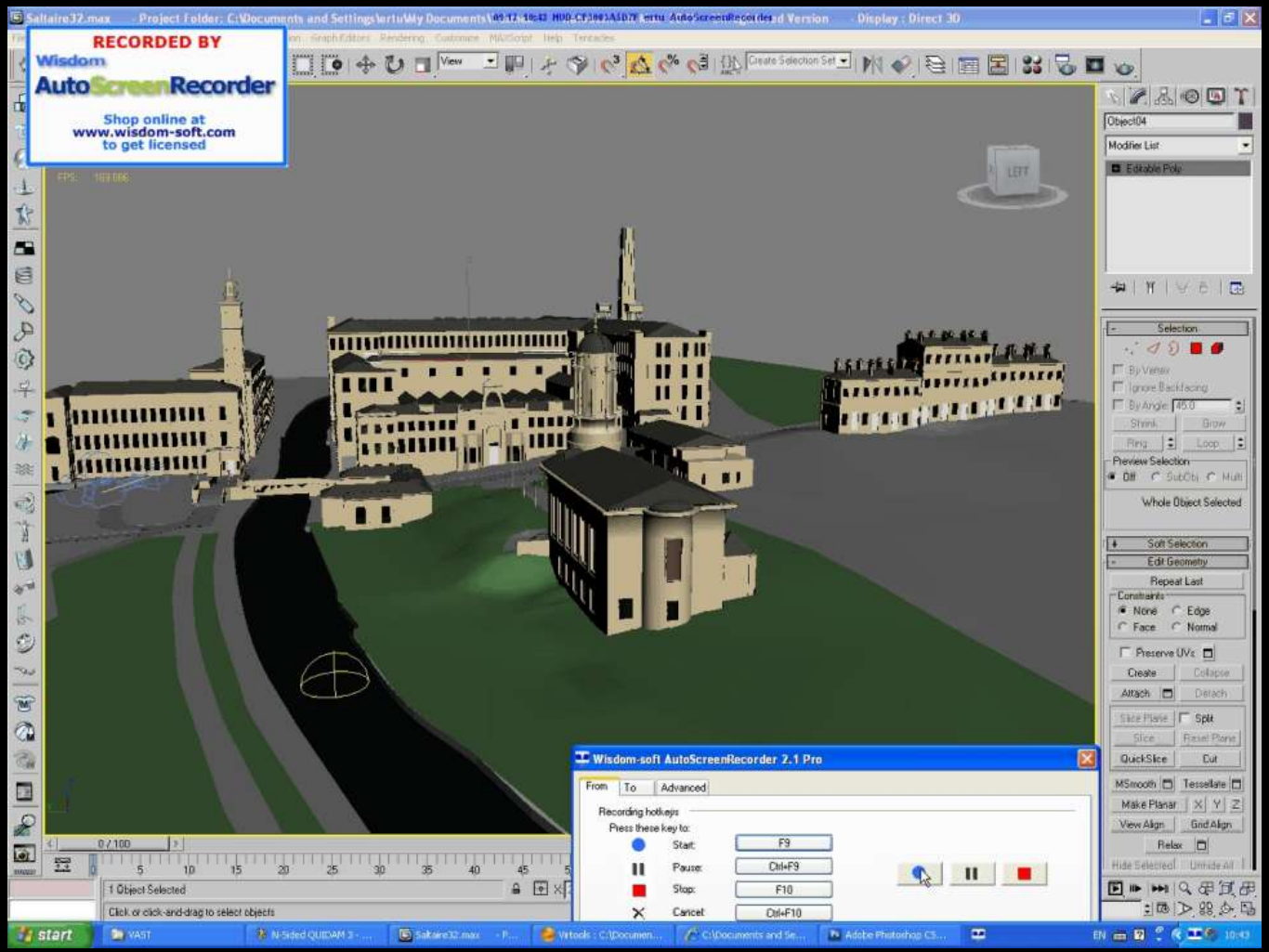
Early modelling process.



3D modelling of significant Saltaire buildings.

3D modelling of significant Saltaire buildings.

Screen capture video of 3D modelling Saltaire site



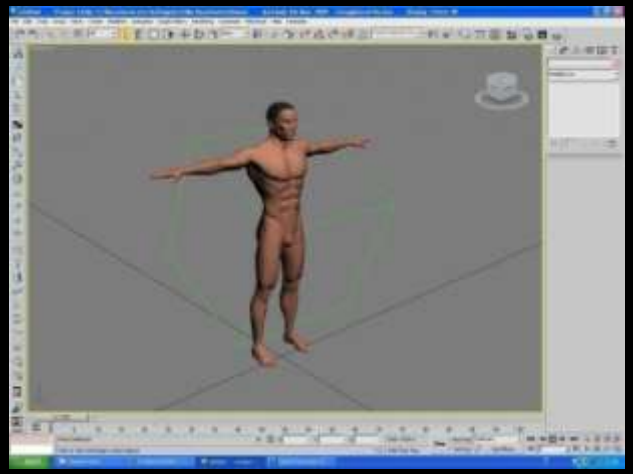
Rendering of church in Saltaire.

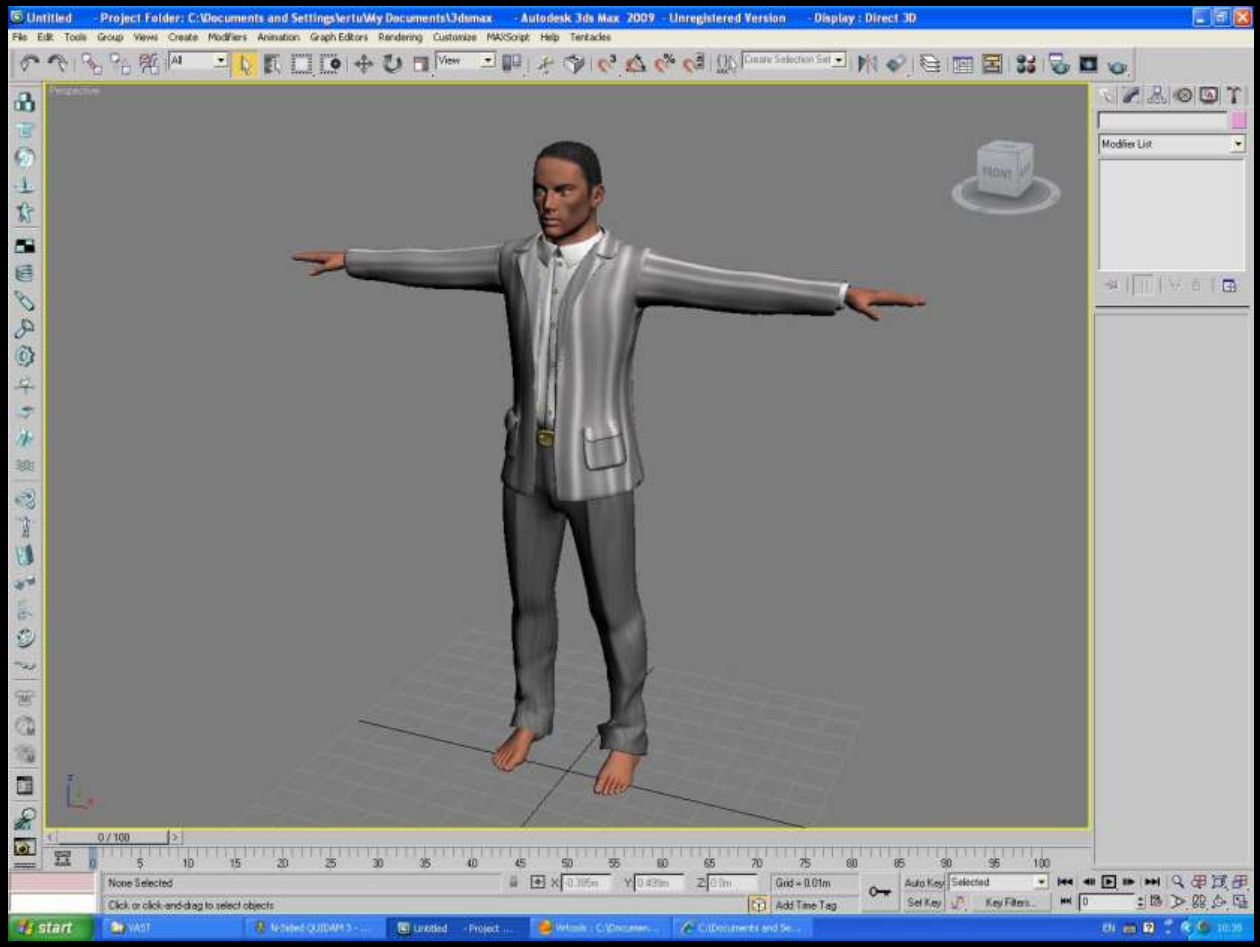
Trees, and environmental rendering for realistic visualisation

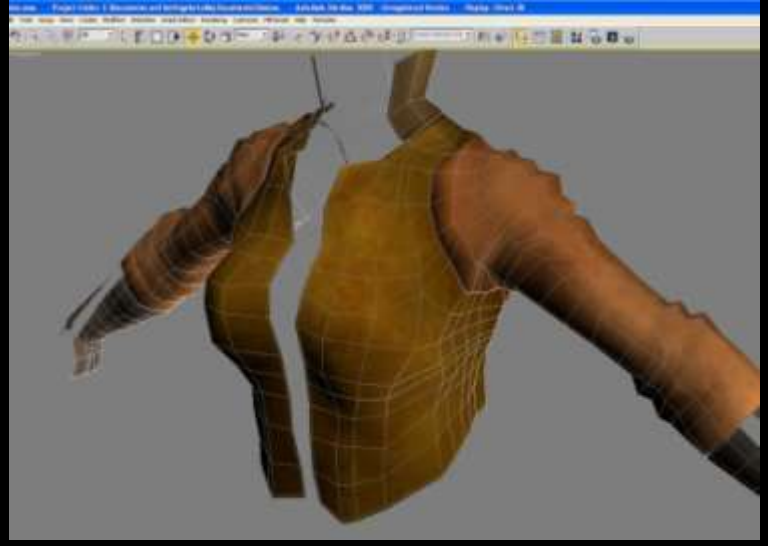
Rendering of the River Aire, trees and church.

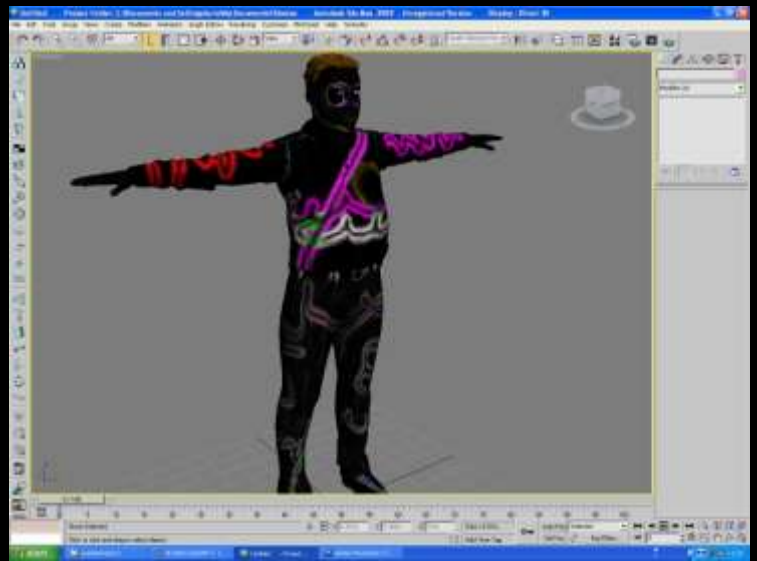
3D character developments

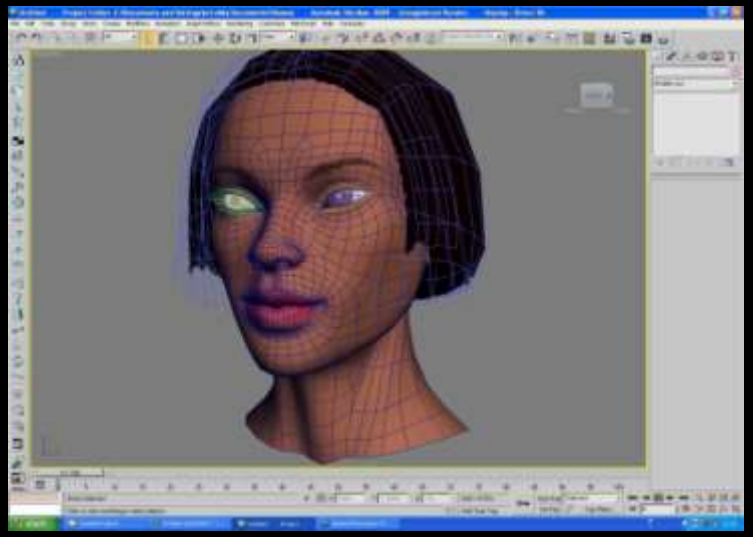
3D character modelling

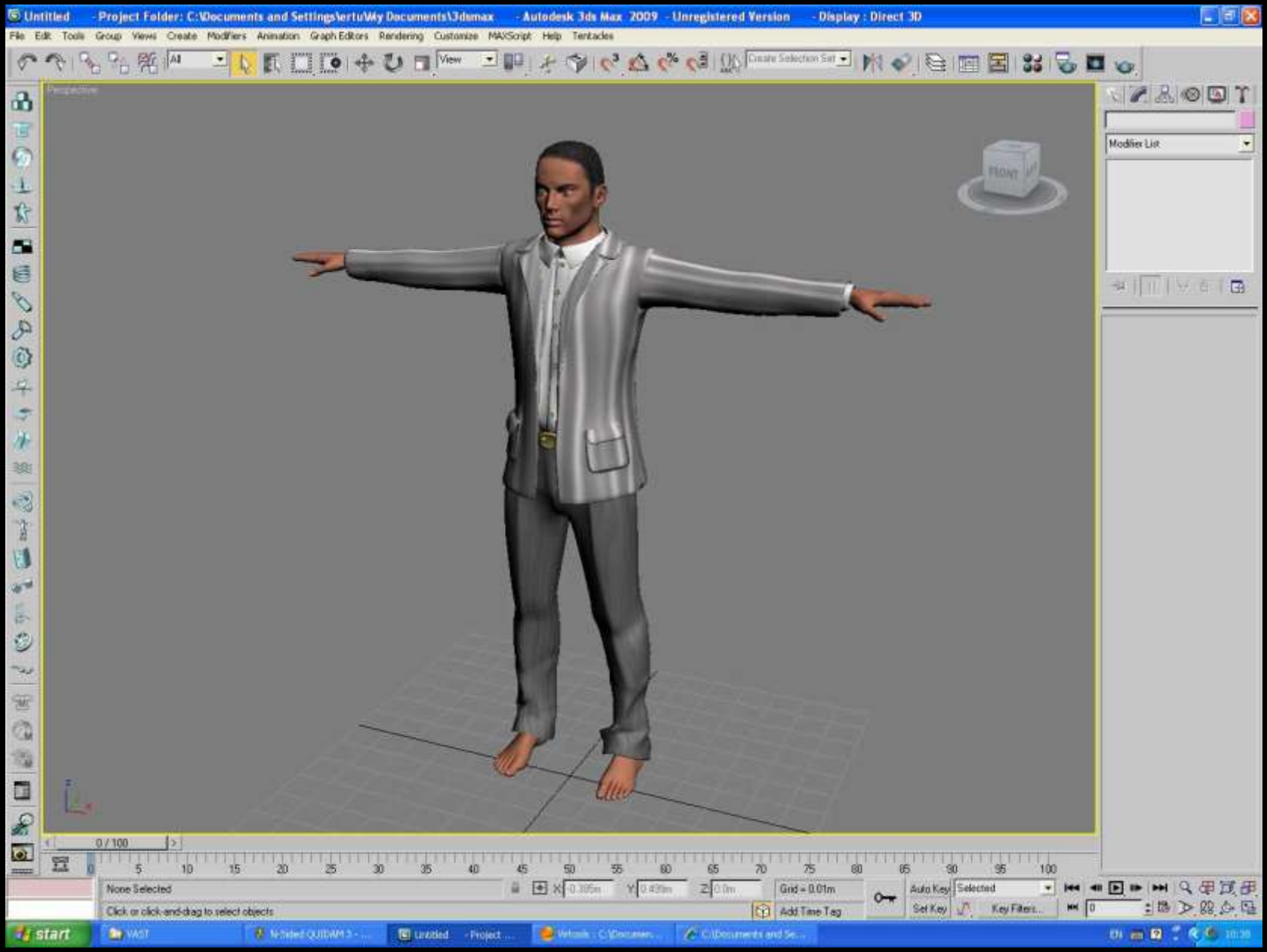











Untitled - Project Folder: C:\Documents and Settings\ertu\My Documents\3dsmax - Autodesk 3ds Max 2009 - Unregistered Version - Display : Direct 3D
File Edit Tools Group Views Create Modifiers Animation Graph Editors Rendering Customize MAXScript Help Tentacles
Modifier List
FRONT
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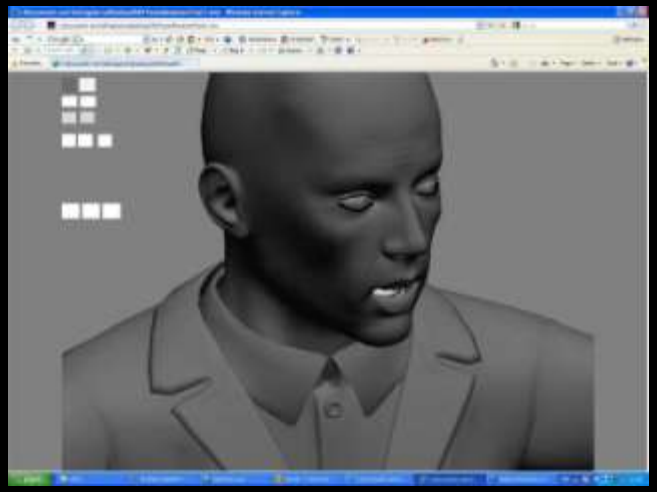
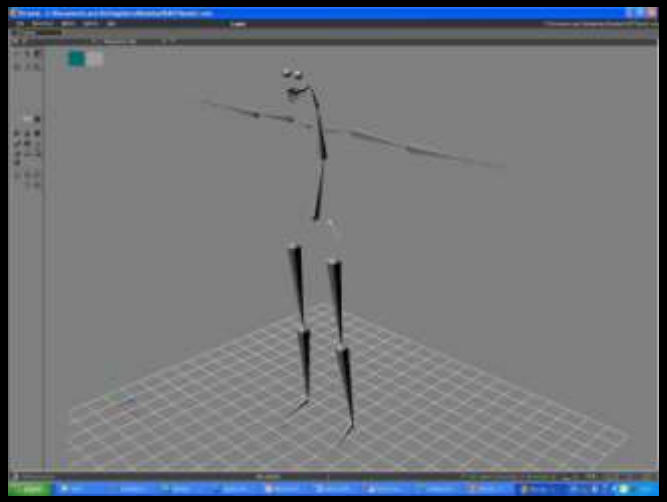
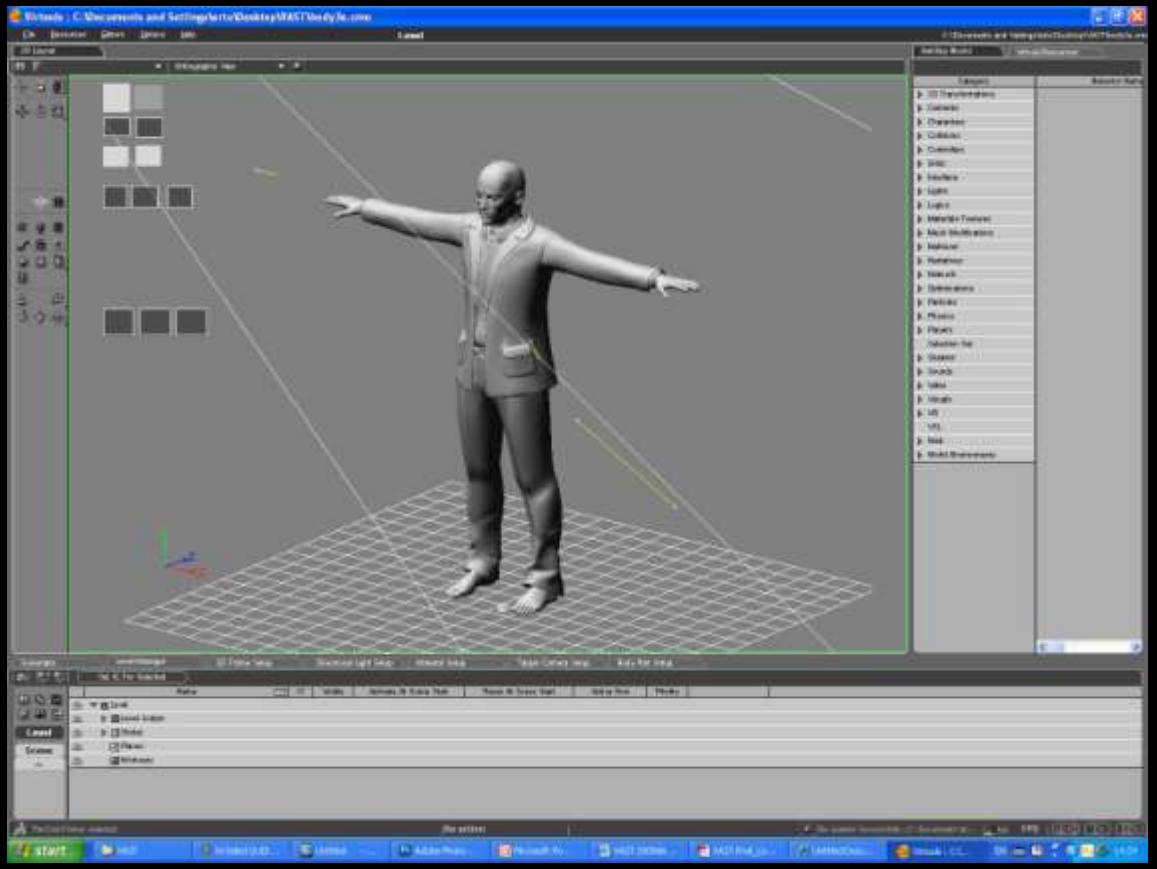
None Selected
Click or click-and-drag to select objects
Add Time Tag
Auto Key
Set Key
Key Filters...
start

Testing for programming of 3D characters







conclusion

- **Research phase 1:**

- background research, identifying requirements/needs of heritage, identifying 3D tools and training, 3Ddevelopment & VAST 2009 short paper delivered and test 3D modeling work.

- **Research phase 2:**

- Completed 3D modelling of Saltaire site.
- Detailed texturing and lighting in progress.
- Sample Characters are modelled, rigged and programmed in virtual environment including face and body movements

- **Research phase 3: Art and Design input** (next stage)
- The realistic artwork will be added to models using artists and designer in the school of ADA as shown

- Finalise the design of the 19th Century characters eg. Titus Salt, workers etc.

- Import Saltaire 3D site to 3D interactive virtual programming software . A) adding trees, cloud, smoke and physical environmental effects, etc
- Model additional textile machinery, objects eg. Horses, transportation
- Program 3D characters to interact with the environment eg. Operate machines .

Links to relevant Paper & 3D Youtube animations:

http://eprints.hud.ac.uk/5626/1/VAST_Huddersfield2009.pdf

- http://www.youtube.com/watch?v=LVghX7BA9R4
- http://www.youtube.com/watch?v=HW1MJVdgtpE
- http://www.youtube.com/watch?v=6AUSujsIdjI
- http://www.youtube.com/watch?v=1j97TFv0NRQ
- http://www.youtube.com/watch?v=5c8uqL7kJyo
- http://www.youtube.com/watch?v=pK7mY11B540