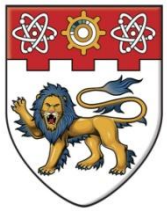

NANYANG TECHNOLOGICAL UNIVERSITY

Design of a Reputation Mechanism for 3D E-Commerce

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Agenda

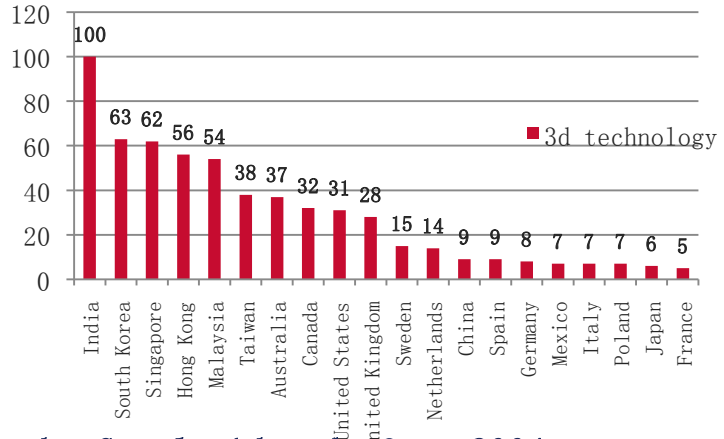
- Motivation and Objectives
- Related Work
- Proposed Methodology
  - Current progress
  - Next steps
- Case Study on 3D Cloth Try on
- Summary and Immediate Steps

Motivations & Objectives

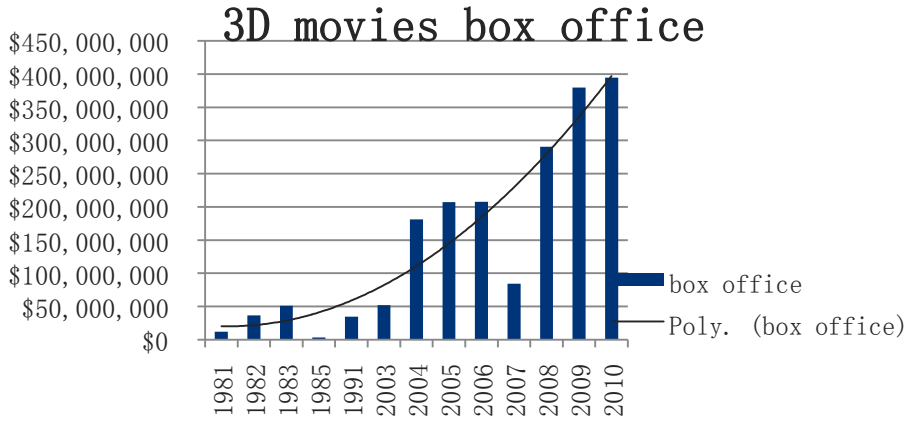
- Limitations of 2D e-commerce
  - Lack of interactivity (Song 2007)
    - Few effective interaction channels
  - Fundamental lack of trust (Gefen et al. 2003)
  - Constrained design of current e-commerce websites

Motivations & Objectives

- 3D technology
  - Forrest report acclaim: "*Within five years, the 3-D Internet will be as important for work as the Web is today.*"
  - *3D virtual communities, 3D Games, 3D movies*



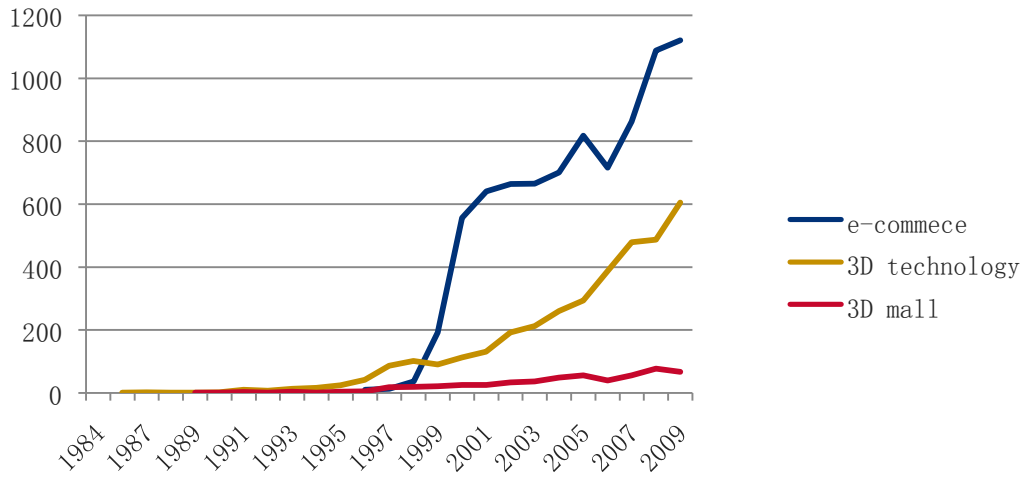
by Google Adword, from 2004 to present



3D movie at box offices
http://boxofficemojo.com/genres/chart/?id=3d.htm

Motivations & Objectives

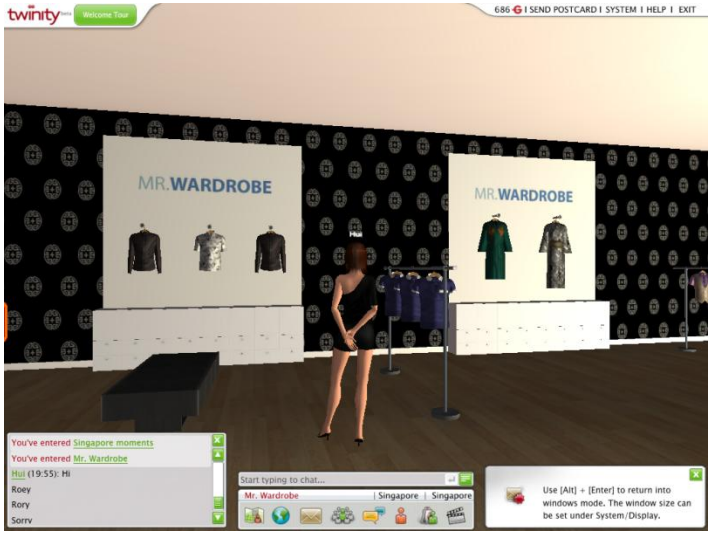
- 3D virtual mall
  - *Increasing interest b*oth in Academic and industrial
    - IBM VR-commerce Program, Google Lively
    - 2nd Life, Active World, Twinity, Virtual shopping



Web of Science (2010/11/3)

Motivations & Objectives

- Virtual Singapore @Twinity
  - Chat, shop, play



Motivations & Objectives

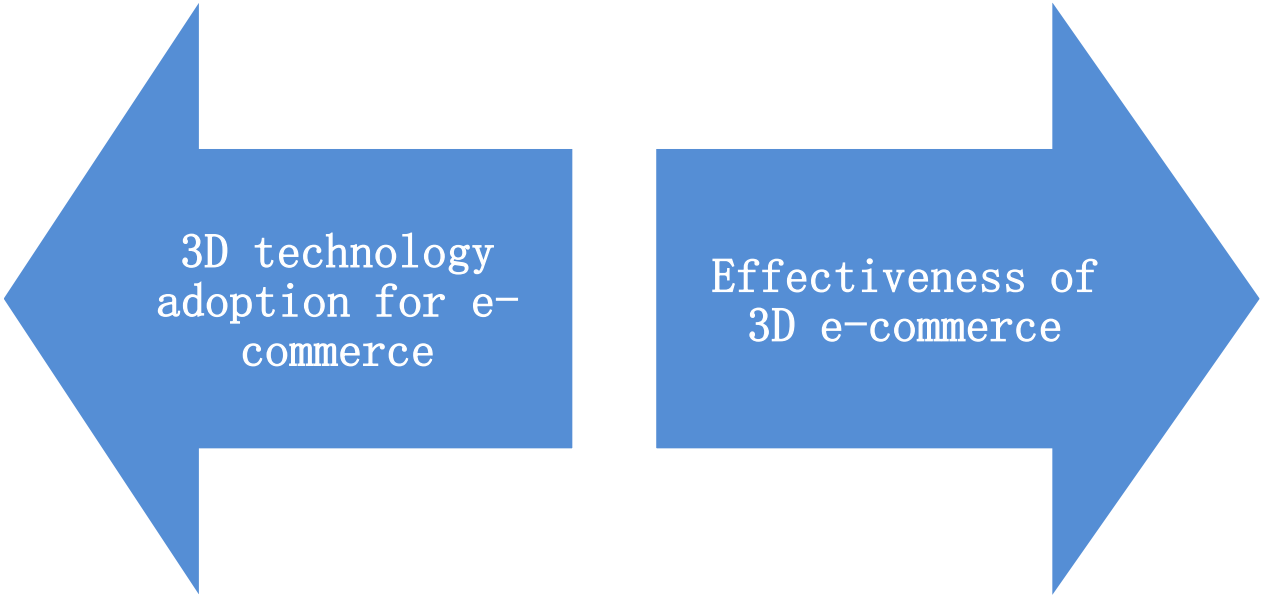
- Summary of two messages
  - 2D e-commerce has limitations
  - 3D e-commerce is getting more feasible and popular
- Inherited problems in 3D e-commerce
  - Some users may be dishonest
    - Sellers may not deliver their promises
    - Buyers may lie about their experience with sellers
  - Users have different competency
    - Some sellers may produce only low quality products
    - Some buyers have limited knowledge about sellers

Motivations & Objectives

- Reputation modeling is an effective approach
  - Model the honesty and competency of users
- Design reputation mechanism for 3D e-commerce
  - Study human factors in 3D virtual commerce
  - Systematically propose a 3D reputation approach
  - Intelligent decision making for users

Related Work

- Two directions



Related Work

- Papadopoulou (2006)
  - Contributions
    - VR e-commerce is better than conventional e-commerce websites
    - Promote trust-building for consumers (Benevolence, competence, integrity and predictability)
  - Limitation
    - Not figure out "how and why VR e-commerce environment can enable customer trust-building"
- Nassiri (2008)
  - Point out that 3D environment facilitated online shopping through Avatar appearance, Social trust, Voice channel, Virtual touch
  - No empirical studies to support conclusions

Related Work

- Teoh and Cyril (2008)
  - Focus on trust level of 3D mall
  - Presence and para-social presence assisted by 3D technology affect trust
  - Users perceive the features of a 3D immersive online e-commerce store as useful and practical and not a mere novelty
  - Gender and ethnicity affect trust toward 3D technology
  - Weakness:
    - Its trust focus on 3D technologies per se
- Huang et al (2008)
  - Proposed a 2D reputation mechanism for 3D environment
  - Advantages on reputation evaluation, storage and query and reliability
  - Weakness:
    - Lack of simulation support and ignore the differences between 2D environment and 3D environment

Related Work

- **Gap**

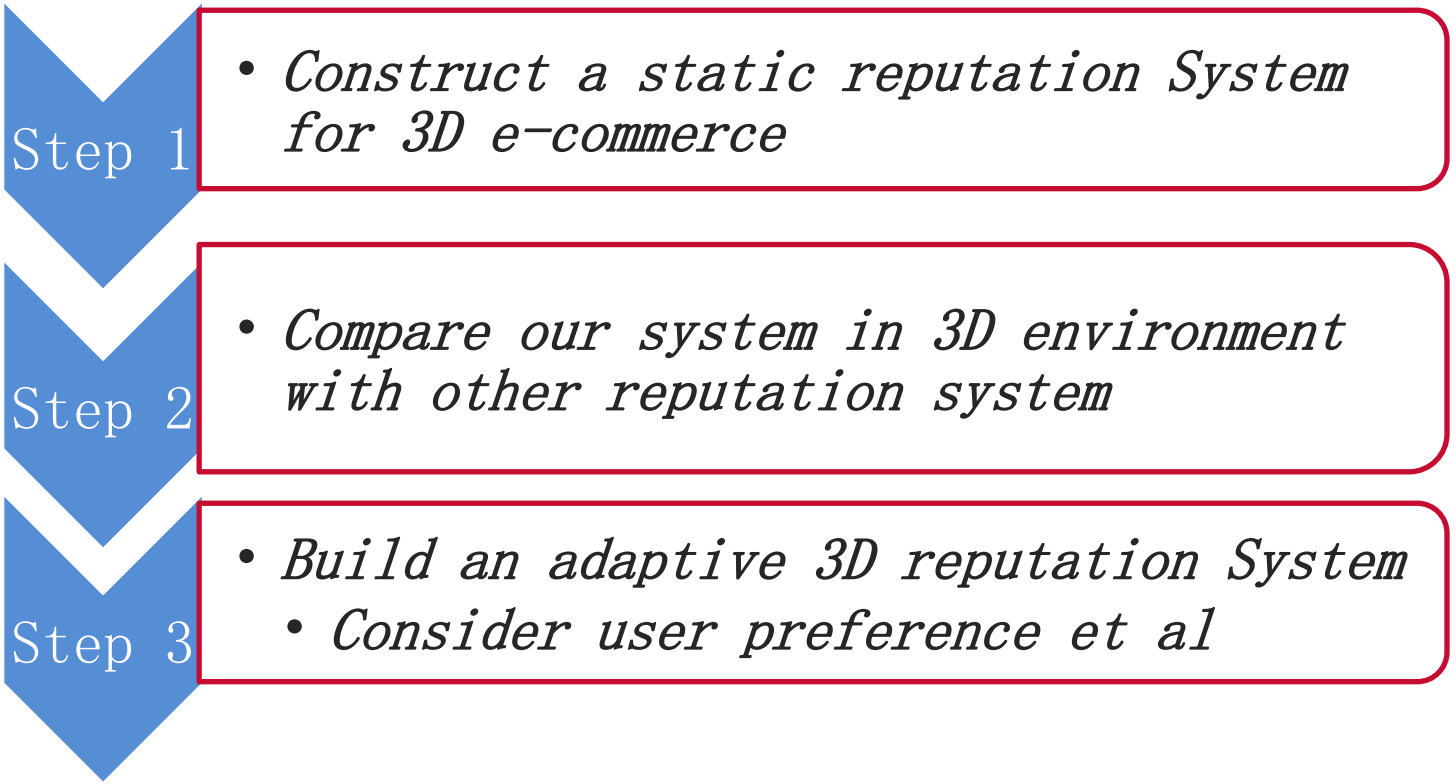
1. Only focus on virtual reality technology adoption per se
2. Overlook the differences between 2D environment and 3D environment, the differences between 3D reputation system and 2D reputation system in 3D environment

The requirement for appropriate reputation mechanism for 3D e-commerce

3D Reputation Mechanism

Proposed Methodology

- Research process

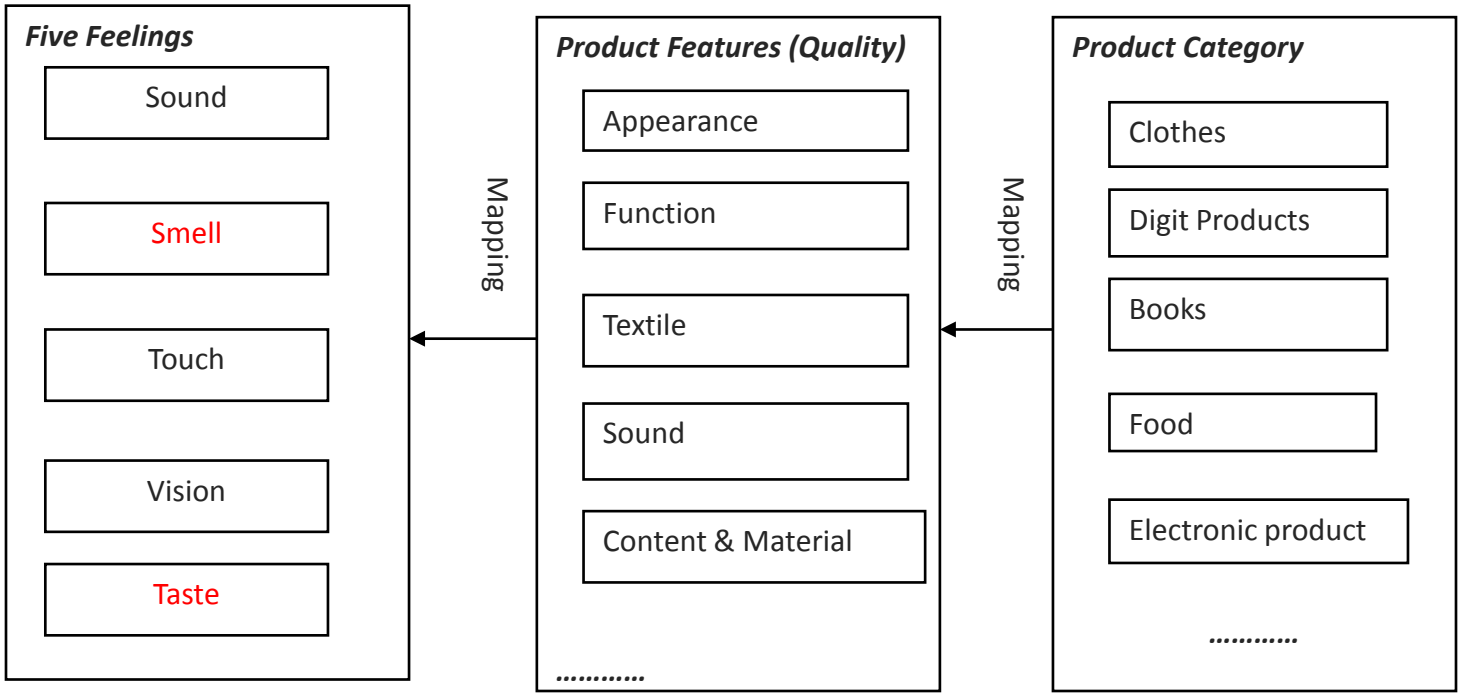


Proposed Methodology

- Current progress
  - Reputation system constructing processes
  - Four steps:
    - Feedback provision: what to collect and how to collect
      - Buyer's experience with e-vendors
    - Feedback computation: how to process feedback
    - Reputation presentation: how to present reputation
    - User decision making

Proposed Methodology

- Current progress
  - Feedback provision: what and how to collect



Proposed Methodology

- Proposed ideas for other steps
  - Feedback computation
    - Pattern recognition: voice, touch, 3D picture, et al.
  - Reputation presentation
    - 3D visualization (Vassileva 2007, 2008, 2009)
  - Automatically user decision making
    - Based on the reputation and user's preference

Case Study – 3D Cloth try-on

- Context:
  - A user sees a cloth in a shop, takes a picture, and transforms it to a 3D object on her own body
  - She wants others' opinions on the cloth, asks other users
- Problems need to be solved
  - Whom to ask? –trust of other users and social network
  - Feedback collection – feedback format for cloth
  - Feedback aggregation – reputation of the cloth
  - User decision making
    - Based on the reputation value, decide whether to buy

Summary

- Aim: An effective reputation mechanism for 3D e-commerce
- Expected immediate outcomes
  - February 2011: submit a paper on our design ideas and preliminary user studies to AAMAS Trust Workshop
  - October 2011: complete the first version of design and prototype to demonstrate and evaluate the design
    - Submitted to AAMAS 2012
  - October 2011: propose a fuzzy logic model for reputation computation based on the CI course
    - also submit to AAMAS 2012

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- *G. Y. Huang, S.Y. Hu and J.R. Jiang 2008, "Scalable Reputation Management for P2P MMOGs", In Proceedings of First International Workshop on Massively Multiusers Virtual Environment, March 8, 2008, pp. 3-8*

Q & A

Thanks!
Any questions?