Overview

- Why learn about Intelligent Tutoring Systems?
- About the field, high level
- About the course
Why Intelligent Tutoring Systems?

- Independent of time & place
  - Individual tutoring
  - Better learning (interactive, visualization, tools, adaptivity..)
- (Semi)-automatic assessment
- Support for teachers
- Knowledge resources from Web

- Virtual Universities
- Usage in school and after-school
- Distance learning
- Remedial courses
- Training on the job
- Military training
- Training for disabled
Why Learn about ITSs?

- Germany:
  - Second phase of market boost
  - Recent increase of real-world applications:
    - ca. 20% of small and medium enterprises, 60% of large enterprises (Germany)
    - 95% of colleges and universities
    - ? of schools

- Interesting research questions and (web-) developments – for Master and Phd theses...
E-Learning Data: internet users June 2008

China: Online education 18.5% = 46,69 million

![Graph showing the amount of internet users in China from 2005.06 to 2008.06. The y-axis represents the amount of citizens in millions, ranging from 0.0 to 3.0 million. The x-axis represents the years 2005.06 to 2008.06. The graph shows a steady increase in the number of internet users, with values of 1.03 million in 2005.06, 1.11 million in 2005.12, 1.23 million in 2006.06, 1.37 million in 2006.12, 1.62 million in 2007.06, 2.10 million in 2007.12, and 2.53 million in 2008.06.](image-url)
The only purpose of 8.4% (7.89 million) users going online is for education. 21.3% users prefer more educational information, 20 million broadband users.
Data 2 From “Statistics Bulletin on Economic and Social Development in P.R.China 2004”

Admission Proportion for High Education

19% 4,200,000

81% 17,905,000

Admitted
Not Admitted
About the Field: generals

- Interdisciplinary research
- Empirical results
- Many practical applications
Hello Mister Hornik.
This is the main page of ActiveMath. Please choose one of the books.

Prerecorded Books

- Complete Content of LeAM_calculus
  Number of pages: 217
- Complete LeAM_calculus Recbook
  Number of pages: 40
- Content for LooE Maths Evaluation
  Number of pages: 21
- Content of AC UK calculus
  Number of pages: 21
- Highschool Content of LeAM_calculus
  Number of pages: 164
- Secondary School Content of LeAM_calculus
  Number of pages: 160
- University Content of LeAM_calculus
  Number of pages: 188
- Up and Down: Derivatives
  Number of pages: 15

Personal Books

No books available.

With ActiveMath, you can create personal books to suit your needs. Just try it!

Create a book

Please note: Because of server updates, you might experience short of this server downtimes. We are sorry for this inconvenience.
Intelligent Tutoring Systems SS09

Interdisciplinary Field

- AI
- Cognitive Psychology
- Pedagogy
- ITS
- Content
- CoLinguistics
- Web-Technology Multimedia

Intelligent Tutoring Systems SS09
Contributions of AI

- Knowledge representation
- User modelling
- Intelligent user interfaces
- Presentation planning, intelligent sequencing
- Diagnosis
- Data mining, Machine learning
- Problem solving systems/automated reasoning
- Agent-based (help) systems
- Adaptive hypermedia
About the Course

- [http://www.activemath.org/Teaching/ITS-SS09](http://www.activemath.org/Teaching/ITS-SS09)
- Course info and announcements online
- Learn about ITSs
  - Aspects of design
  - Different components
  - AI applications for improving ITSs
Student Obligations and Opportunities

- Register online (also remember HISPOS)
- Choose a topic for presentation
- Read introductory papers
- Read papers on topic and prepare presentation slides
- Contact and meet advisor: questions, feedback on presentation – EARLY ON!
- Participate actively in the block course
- Present your slides (30 min)
- Get Schein from secretary Frau Stein

Projects: Express interest for student project in the AM group
Course Topics

- Student modelling
  - Overview
  - AM and Item Response Theory
  - Motivation
  - Decision nets
  - Bayesian nets
- Educational data mining
  - Design of ITS
  - Gaming the system
  - Statistical methods
- Domain Reasoning and Diagnosis
  - Domain reasoning
  - Model tracing
  - Constraint based modelling

- Tutorial dialogues
- Pedagogical components
  - Feedback
  - Course generation
- Collaboration
  - Collaborative Learning
  - Argumentation Systems
- Authoring systems
- Adaptation
- Meta-cognition
- Empirical studies with ITS
Recommended Work and Course Plan

- 24.04.2009: Kickoff meeting
- 30.05.2009: Finish reading intro papers
- 02.06.2009: Seminar with questions on intro papers
- 30.06.2009: Finish reading topic papers
- 15.07.2009: First version of slides and meeting with advisor
- 20.07.2009: Final version of slides to advisor
- 24.07.2009: Slides (pdf) to Dimitra
- Week 24-26.08: Project presentations by students