Linting Xue

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RESEARCH INTERESTS

Automated essay grading, argumentation analysis, graph data mining and text mining.

EDUCATION

Ph.D. in **Computer Science**	North Carolina State University	2015 - expected 2019
M.S. in **Mechanical Engineering**	Wilkes University	2012 - 2014
B.E. in **Electrical Engineering**	Shanghai University of Electric Power, China	2006 - 2010

RESEARCH EXPERIENCE

Argumentation Mining to Support Automated Grading Ongoing

- Applying maximum entropy model to identify the argument and non-argument clauses.
- Applying deep learning to classify the argument components and their relationships.

Web-based Argument Diagram Tool for Teaching Critical Thinking Ongoing

- Developing a web-based argument diagram tool using Flask, HTML and JavaScript.
- Developing a drag-and-drop interface for analyzing textual arguments.

Rule Induction on Argument Diagrams for Automatic Grading 08/2015 - 07/2017

- Applied graph rule induction algorithms (e.g. Subdue, gSpan) on student-produced argument diagrams to induce graph rules.
- Implemented evolutionary computation (EC) with novelty selection to induce graph rules.
- EC induced 50% more rules with better performance compared to expert rules and rules induced by Subude and gSpan.

Social Network Analysis of Student Online Interaction 02/2017 - 07/2017

- Investigated the correlation between social metrics and students' grades.
- Build an early warning system to help students on track.

Digital Human Modeling for Ergonomic Evaluation of Patient Table Height 08/2012 - 01/2014

- Developed a 30-DOF kinematic human model for the simulation of laparoscopic surgery.
- Identified optimal heights of medical exam tables for surgeons with different heights using genetic algorithm and sequential quadratic programming.

PROJECTS

Neural Activities Detection by Classifying the Data of EEG Signals 08/2016 - 12/2016

- Led project to detect neural activities using deep learning (Deep Belief Network).
- Achieved 26% improvement in accuracy over SVM and logistic regression.

Image Classification on CIFAR-10 Dataset 08/2015 - 12/2015

- Led project to classify images using deep learning (Convolutional Neural Network, and Stacked Autoencoders).
- Achieved 30% improvement in accuracy over PCA+SVM.

National Freescale Cup Intelligent Car Racing Competition *(Team leader)* 12/2008 - 08/2009

- Worked in a team of four to design the software and hardware of automated vehicle.
- Implemented fuzzy logic and PID control algorithms to track car speed and orientation.
- Won the second national prize.

CONFERENCE ORGANIZATION

Co-chaired the third international workshop on Graph-based Educational Data Mining, 2017.

PUBLICATIONS

[1] **Xue, Linting**, Collin F. Lynch, and Min Chi. "*Mining Innovative Augmented Graph Grammars for Argument Diagrams through Novelty Selection*." In Proceeding of the 10th Conference on Educational Data Mining, pp. 296 - 300. (2017)

[2] Gitinabard, Niki, **Linting Xue**, et al. "*Social Network Analysis on Blended Courses*." The Third International Workshop on Graph-Based Educational Data Mining. (2017)

[3] **Xue, Linting**. "*Intelligent Argument Grading System for Student-produced Argument Diagrams*." Doctoral Consortium on the 10th Conference on Educational Data Mining. (2017)

[4] **Xue, Linting**, Collin Lynch, and Min Chi. "*Unnatural Feature Engineering: Evolving Augmented Graph Grammars for Argument Diagrams*." In Proceeding of the 9th Conference on Educational Data Mining, pp. 255 - 262. (2016)

[5] Lynch, Collin F., **Linting Xue**, and Min Chi. "*Evolving augmented graph grammars for argument analysis*." In the proceedings of the 2016 on Genetic and Evolutionary Computation Conference Companion, ACM, pp. 65 - 66. (2016).

[6] **Xue, Linting**, Collin F. Lynch, and Min Chi. "*Graph Grammar Induction via Evolutionary Computation*." The Second International Workshop on Graph-Based Educational Data Mining. (2015)

[7] Zhang, Xiaoli, **Linting Xue**, et al. "*Digital human modeling for ergonomic evaluation of patient table height*." Robotics and Biomimetics (ROBIO), 2013 IEEE International Conference on, IEEE, pp. 1480 - 1485. (2013)

[8] Li, Songpo, Jiucai Zhang, **Linting Xue**, et al. "*Attention-aware robotic laparoscope for human-robot cooperative surgery*." Robotics and Biomimetics (ROBIO), 2013 IEEE International Conference on, IEEE, pp. 792 - 797. (2013)

HONORS & AWARDS

- Merit Student Award from Shanghai Education Bureau in China *(Top 1%)* 2010
- The 2nd prize of National Freescale Cup Intelligent Car Competition *(Top 1%)* 2009
- Undergraduate Student Merit Award *(Top 3%)* 2010
- Outstanding Undergraduate Thesis awards *(Top 3%)* 2010
- Undergraduate Scholarship *(Top 8%)* 2008
- National Encourage Scholarship *(Top 3%)* 2007

SKILLS

Python (Nltk, Sklearn, Keras, Theano, Flask, etc), R, Matlab, C++, JavaScript, HTML, MySQL, Linux

REFERENCES

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