

# ASMAA ELBADRAWY

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## EDUCATION

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**Ph.D., Computer Science, 2011-Present** – *expected within 2016/2017 academic year*

University of Minnesota, Minneapolis

Adviser: George Karypis

Fields: Educational Data Mining, Learning Analytics & Recommender Systems

**M.Sc., Computer Science, 2011-2013**

University of Minnesota, Minneapolis

Overall GPA: 3.93

**M.Sc., Computer Engineering, 2009**

Cairo University, Cairo

Adviser: Elsayed Hemayed and Magda Fayek

**B.S., Computer Engineering, 2007**

Cairo University, Cairo

Overall GPA: 4.0

## TEACHING EXPERIENCE

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I have worked as a teaching assistant with session recitation and grading responsibilities for multiple computer science and computer engineering courses.

**Algorithms and Data Structures**

Computer Science Department, University of Minnesota

*Spring-2013 & Spring-2012*

**Artificial Intelligence I & II**

Computer Engineering Department, Cairo University

*Fall-2007,2008 & Spring-2008,2009*

**Microprocessor Systems I & II**

Computer Engineering Department, Cairo University

*Fall-2007,2008 & Spring-2008,2009*

## RESEARCH EXPERIENCE

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### **Research Assistant, 2011-Present**

Karypis Research Lab, Computer Science Department, University of Minnesota.

I have conducted research in the fields of Data Mining, Recommender Systems, Educational Data Mining and Learning Analytics.

### **Educational Data Mining & Learning Analytics**

I develop methods for analyzing student enrollment data and data collected from online learning environments. These methods are inspired by recommendation techniques but are tailored to address problems in the educational domain such as predicting student grades within course activities, predicting final course grades, and generating personalized course rankings to help students find relevant courses.

### **Recommender Systems**

I developed methods to address the problem of recommending new items (cold-start recommendation). These methods combine ideas from neighborhood and latent-factor methods and they utilize the features that describe the items. They learn personalized models that estimate how much a user would be interested in a new item given the items that he has previously liked while also accounting for the global preference patterns in order to benefit from the similarities among the different users.

## PUBLICATIONS

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### **Conference Papers**

**Domain Aware Grade Prediction and Top-n Course Recommendation**, [Asmaa Elbadrawy](#) and George Karypis, 10th ACM Recommender Systems Conference, September 2016.

**Predicting Student Performance using Personalized Analytics**, [Asmaa Elbadrawy](#), Agoritsa Polyzou, Zhiyun Ren, Mackenzie Sweeney, George Karypis, and Huzefa Rangwala, IEEE Computer Society, April 2016.

**Collaborative Multi-Regression Models for Predicting Students' Performance in Course Activities**, [Asmaa Elbadrawy](#), R. Scott Studham and George Karypis, Learning Analytics and Knowledge Conference, LAK'15, March 2015.

**Speeding up Cloth Simulation by Linearizing the Bending Function of the Physical Mass-Spring Model**, [Asmaa Elbadrawy](#) and Elsayed E. Hemayed, The First Joint 3DIM/3DPVT Conference, 3DIMPVT, May 2011.

## Journal Papers

**User-Specific Feature-based Similarity Models for Top-n Recommendation of New Items**, Asmaa Elbadrawy and George Karypis, ACM Transactions on Intelligent Systems and Technology (TIST), Volume 6 Issue 3, May 2015.

**Rapid Collision Detection for Deformable Objects using Inclusion-Fields Applied to Cloth Simulation**, Asmaa Elbadrawy, Elsayed E. Hemayed and and Magda B. Fayek, Journal of Advanced Research, 2012.

## Posters

**Learning Data Analytics: Providing Actionable Insights to Increase College Student Success**, Huzefa Rangwala, Aditya Johri, Agoritsa Polyzou, Asmaa Elbadrawy and George Karypis, 2016 NSF Big Data PI Meeting, April 2016.

**Recommender Systems and Learning Analytics**, Agoritsa Polyzou, Asmaa Elbadrawy, Evangelia Christakopoulou, Mohit Sharma and George Karypis, University of Minnesota Open House, November 2015

## Tutorials

**Opportunities, Challenges and Methods for Higher Education Data Mining**, Asmaa Elbadrawy Huzefa Rangwala, Aditya Johri and George Karypis, SIAM International Conference on Data Mining, April 2017.

## AWARDS

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### Honorable Mention

NCWIT Collgiate Award, 2017.

## PROGRAMMING SKILLS

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### Programming Languages

C, C++, Java, Assembly, C#, Lisp and Fortran.

### Scripting Languages

Perl, Python, Unix Shell Programming, AWK, HTML, PHP, JavaScript, Tcl, R, LaTeX and GNUPlot.

### Other

SQL and Matlab

## ACADEMIC PEER-REVIEWING ACTIVITY

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I have reviewed papers and articles for the following academic venues.

ACM Transactions on Intelligent Systems and Technology (TIST)  
ACM Conference Series on Recommender Systems (RecSys)  
ACM International Conference on Information and Knowledge Management (CIKM)  
Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)  
IEEE International Conference on Data Mining (ICDM)  
IEEE International Conference on Big Data (BigData)  
IEEE International Conference on Bioinformatics and Biomedicine (BIBM)

## SELECTED COURSE WORK

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I have taken these graduate-level courses at the University of Minnesota.

Introduction to Research in Computer Science I and II - *by Ravi Janardan*  
Advanced Algorithms and Data Structures - *by Ravi Janardan*  
Introduction to Data Mining - *by Vipin Kumar*  
Sparse Matrix Computations - *by Yousef Saad*  
Engineering Optimization I - *by John Gunnar Carlsson*  
Introduction to Parallel Computing - *by George Karypis*  
Modern Graph Theory - *by Victor Reiner*  
Machine Learning - *by Rui Kuang*  
Principals of Database Systems - *by Shashi Shekhar*

## REFERENCES

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**George Karypis**, Associate Head  
Distinguished McKnight University Professor  
ADC Chair of Digital Technology  
Dept. of Computer Science & Engineering  
University of Minnesota, Minneapolis, MN 55455  
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**Nikos Sidiropoulos**, Professor  
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**Carl Sturtivant**, Instructor  
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