

# Farshid Marbouti

Assistant Professor  
General Engineering, Charles W. Davidson College of Engineering  
Applied Computing for Behavioral and Social Sciences  
Special Consultant, Institutional Effectiveness and Analytics  
San Jose State University

**Email:** farshid.marbouti@sjsu.edu  
**Webpage:** www.farshid.net

## Education & Certificates

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**Doctor of Philosophy (Ph.D.) in Engineering Education** May 2016

Purdue University, West Lafayette, Indiana

- Dissertation: A Learning Objective-Based Model to Predict Students' Success in a First-Year Engineering Course
- Advisory Committee: Dr. Diefes-Dux (chair), Dr. Madhavan (co-chair), Dr. Ohland, Dr. Main
- Graduate Certificate in Psychological Statistics (Dec. 2015)

**Master of Art (M.A.) in Educational Technology and Learning Design** May 2012

Simon Fraser University, Vancouver, Canada

- Thesis: Design and Implementation of a Graphical Interface for Online Discussions
- Advisory Committee: Dr. Wise (chair), Dr. O'Neill, Dr. Kirkpatrick
- Certificates of Instructional Skills Workshop (ISW) and International Teaching Assistants (ITA)

**Master of Science (M.S.) in Computer Engineering, Artificial Intelligence** Jan. 2005

Amirkabir University of Technology, Tehran, Iran

- Thesis: Recovery of Planar Parallax (3D image depth) from Multiple Frames
- Advisory Committee: Dr. Rahmati (chair), Dr. Safabakhsh, Dr. Kabir

**Bachelor of Science (B.S.) in Computer Engineering, Software** June 2002

Sharif University of Technology, Tehran, Iran

## Grant Writing Experience

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**National Science Foundation, IUSE program, NSF EEC 1329304, 2013**

- Amount awarded: \$300,000
- Title: Expert-Novice Framework to Support Student and Instructor Feedback on Design
- Helped design the research study and write the proposal

**Discovery, Engagement and Learning (DEAL) Grant, Purdue University, 2012**

- Amount awarded: \$2,500
- Title: Investigating Graduate and Undergraduate TAs' Perspectives Regarding Model-Eliciting Activity Implementation in the First-Year Engineering Program
- Wrote the proposal as a member in an interdisciplinary team of four graduate students

## Awards

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- Duncan Fraser Best Student Paper Award at Research in Engineering Education Symposium, 2015
- Purdue Graduate Student Government Professional and Travel Grants, 2015 (\$1000), 2013 & 2014 (\$500)
- Ross Fellowship, Purdue University, 2012, ~\$52,000
- Graduate Fellowship, Simon Fraser University, 2011, \$6,250

## Memberships

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- Member of American Society for Engineering Education (ASEE)
- Member of Society for Learning Analytics Research (SoLAR)

## Educational Research and Teaching Experience

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### Assistant Professor

Aug 2016 – Present

College of Engineering, San Jose State University

- Member of the team for development and evaluation of *Applied Computing for Behavioral and Social Sciences* minor degree
- Instructor of *Programming Concepts for Behavioral and Social Science Applications* – Spring 2017
- Instructor of Introduction to Engineering – Fall 2016
  - Redesign the course to add *design education* components
  - Utilized 3D modelling and printing to create and test design prototypes
- Co-designed *strategic planning for your career* course, offer Fall 2017
- Establish a research program on design education and student success
- Member of college of engineering Graduate studies and Assessment committees
- Special consultant of Institutional Effectiveness and Analytics (IEA)
  - Develop prediction models using machine learning algorithms on longitudinal SJSU student data
  - Transfer knowledge of prediction modeling techniques to IEA staff
- Member of steering committee for FIE 2018

### Postdoctoral Research Associate

Feb 2016 – Aug 2016

### Graduate Research Assistant

Jan 2014 – Jan 2016

School of Engineering Education, Purdue University

Feedback on Design National Science Foundation Project (NSF EEC 1329304)

- Co-operated in writing the project proposal to submit to NSF
- Developed a coding scheme and analyzed student, instructor, and TA feedback data
- Analyzed the feedback based on human-center design concepts
- Conducted professional development feedback workshop for educators and systems engineers

### Co-instructor of first-year engineering course (ENGR 132)

Jan 2016 – May 2016

School of Engineering Education, Purdue University

- Teach some sessions of the course
- Review the course material to finalize them for the class
- Meet with graduate and undergraduate teaching assistants

### Ph.D. Student

Jan 2012 – May 2016

School of Engineering Education, Purdue University

- Used learning analytics to identify at-risk students in a first-year engineering course (dissertation)
  - Analyzed more than 3300 students' grades (~300,000 records)
  - Implemented neural network, decision tree, support vector machine (SVM), k-nearest neighbor, and naive bayes classifier prediction models
- Implemented naive bayes classifier and k-means clustering in python for a computer science data mining course
- Investigated influence of time of class on students' grades in an active learning course with HML analysis
- Evaluated grading reliability for model-eliciting activities in first-year engineering (FYE) program

### Graduate Researcher

Apr 2012 – Apr 2014

DEAL Project, Purdue Graduate Student Government (PGSG), Purdue University

- Prepared research proposal and IRB application
- Prepared and conducted semi-structured interviews to understand FYE TAs' perspectives
- Created and administrated a survey instrument
- Analyzed interview and survey data

**Graduate Teaching Assistant of Preparing Future Faculty/Professionals courses** *Jan 2013 – Dec 2013*

Graduate School, Purdue University

- Help the course instructor prepare reading materials
- Graded assignments and managed the course on Blackboard
- Designed rubrics for evaluating faculty candidates' portfolios
- Administrated a self-assessment survey to assess students' employability skills

**Graduate Research Assistant** *Jan 2012 – Dec 2012*

INSPIRE, Purdue University

- Developed a prototype of SMART board application to support Model-Eliciting Activities

**Master Student** *Sep 2009 – Dec 2011*

Simon Fraser University, Vancouver, Canada

- Designed, implemented, and tested a new graphical interface to support online discussion forums interactions
- Co-developed "Live Learning Poll" Moodle block for formative evaluation during online and face-to-face classes (published on [www.moodle.org](http://www.moodle.org))
- Designed multimedia learning modules (Map of Canada and Multiplication of signed numbers)

**Research Assistant** *Oct 2009 – Dec 2011*

Simon Fraser University, Vancouver, Canada

- Cooperated in a three-year study on students' participation in online discussion forums including literature review, data gathering, data analysis, and writing reports and papers
- Modified a PHP & MySQL online discussion forum (Phorum) in order to log click stream data and have a particular interface and functionality required for the study
- Analyzed more than 100,000 data logs using SPSS and MS Excel macro programming
- Developed a survey on students' participation in online forums
- Conducted micro-analytic case studies to understand student behaviors in online forums

**Faculty Member** *Sep 2005 – Aug 2009*

Jondi-Shapoor University of Technology, Iran

- Started undergraduate computer engineering program and designed its curriculum
- Instructed computer courses including Computer Programming (C++), Data Structures, Numerical Methods, and MATLAB workshop
- Conducted research on e-learning and published two papers in national conferences

**Peer Reviewed Journal Publications**

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1. **Marbouti, F.**, Mendoza-Garcia, J., Diefes-Dux, H., & Cardella, M. (in review). Written feedback provided by first-year engineering students, undergraduate teaching assistants, and educators on design project work. *European Journal of Engineering Education*.
2. **Marbouti, F.**, Shafaat, A., Ulas, J., & Diefes-Dux, H. (in review). Influence of time of class on students' grades in an active learning course. *Journal of Engineering Education*.
3. **Marbouti, F.**, Diefes-Dux, H., & Madhavan, K. (2016). Models for early prediction of at-risk students in a course using competency-based grading. *Computers & Education*, 103, 1-15.
4. Cardella, M., Diefes-Dux, H., & **Marbouti, F.** (2016). Written feedback on design: A comparison of students and educators. *International Journal of Engineering Education*, 32, 1481-1491.
5. **Marbouti, F.** & Wise, A. F. (2016). Starburst: A new graphical interface to support productive engagement with others' posts in online discussions. *Educational Technology Research and Development*, 64(1), 78-113.
6. Wise, A. F., Speer, J., **Marbouti, F.**, & Hsiao, Y. T. (2013). Broadening the notion of participation in online discussions: Examining patterns in learners' online listening behaviors. *Instructional Science*, 41(2), 323-343.

7. Wise, A. F., **Marbouti, F.**, Hsiao, Y. & Hausknecht, S. (2012). A survey of factors contributing to learners' "listening" behaviors in asynchronous discussions. *Journal of Educational Computing Research*, 47(4), 461-480.
8. Wise, A. F., Perera, N., Hsiao, Y., Speer, J., & **Marbouti, F.** (2012). Microanalytic case studies of individual participation patterns in an asynchronous online discussion in an undergraduate blended course. *The Internet and Higher Education*, 15(2), 108-117.

### Workshops/Invited Talks

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1. **Marbouti, F.**, Cardella, M., Mendoza-Garcia, J., & Verleger, M. (June, 2017). *Educators' written feedback on design*, Workshop will be presented at the 2017 American Society for Engineering Education Annual Conference, Columbus, OH.
2. **Marbouti, F.**, Mendoza-Garcia, J., & Kenley, B. (January, 2017). *Engineers' peer feedback on design*, Workshop will be presented at International Council of Systems Engineers (INCOSE) International Workshop, Torrance, CA.
3. Rodgers K. & **Marbouti, F.** (November, 2015). *I wish I knew ... about research!* Professional Development workshop presented to engineering education undergraduate researchers, West Lafayette, IN.
4. Diefes-Dux, H., **Marbouti, F.**, Rodgers, K., & Shafaat, A. (October, 2015). *Peer review feedback for Systems Engineers*. Professional development workshop at International Council of Systems Engineers (INCOSE) Great Lakes Regional Conference, Cleveland, OH.
5. **Marbouti, F.**, & Rodgers, K. (August, 2015). *How to give constructive feedback?* Professional development workshop for teaching assistants of first-year engineering honors courses, Purdue University, West Lafayette, IN.
6. **Marbouti, F.**, & Wise, A. F. (January, 2014). *Starburst, a new graphical interface to support engagement in online discussions*. Invited presentation at New York University, NY.
7. Wise, A. F., & **Marbouti, F.** (September, 2011). *Supporting "listening" in online discussions: A visual interface to promote engagement with chains of ideas*. Invited presentation given at the Socializing Intelligence through Academic Talk and Dialogue Conference hosted by the Learning Research and Development Center, University of Pittsburgh, Pittsburgh, PA.

### Peer Reviewed Conference Publications/Presentations (since 2011)

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1. **Marbouti, F.**, Diefes-Dux, H., Cardella, M., Shafaat, A. (2016). Engineers' written feedback on design, *Proceedings of the 2016 IEEE Frontiers in Education Conference, Erie, PA*.
2. Shafaat, A., Ebrahiminejad, H., **Marbouti, F.**, Cardella, M., & Kandil, A. (2016). Developing a systematic framework to enhance construction procedure design, *Proceedings of the 2016 IEEE Frontiers in Education Conference, Erie, PA*.
3. Shafaat, A., Esmaeili, B., **Marbouti, F.**, & Fulk, B. (2016). How service learning can be offered as capstone. *Proceedings of the 2016 IEEE Frontiers in Education Conference, Erie, PA*.
4. **Marbouti, F.**, Diefes-Dux, H., & Cardella, M. (2016). Professional Development for Engineering Students and Educators for Feedback on Design. *Proceedings of the 2016 American Society for Engineering Education Annual Conference, New Orleans, LA*.
5. **Marbouti, F.**, Cardella, M., & Diefes-Dux, H. (2015). There is more than one way to analyze feedback on design. *Proceedings of the 2015 IEEE Frontiers in Education Conference, El Paso, TX*.
6. **Marbouti, F.**, Diefes-Dux, H., & Madhavan, K. (2015). Comparing prediction methods to identify at-risk students using course performance data. *Proceedings of the 6th Research in Engineering Education Symposium, Dublin, Ireland (Best Student Paper)*.
7. **Marbouti, F.**, Cardella, M., & Diefes-Dux, H. (2015). Students' and educators' written feedback on design milestones. *Proceedings of the 6th Research in Engineering Education Symposium, Dublin, Ireland*.
8. **Marbouti, F.**, Diefes-Dux, H., & Strobel, J. (2015). Building course-specific regression-based models to identify at-risk students. *Proceedings of the 2015 American Society for Engineering Education Annual Conference, Seattle, WA*.

9. **Marbouti, F.**, Diefes-Dux, H., & Cardella, M. (2015). Students and engineering educators' feedback on design. *Proceedings of the 2015 American Society for Engineering Education Annual Conference*, Seattle, WA.
10. Cardella, M., Diefes-Dux, H., & **Marbouti, F.** (May, 2015). *Feedback on design: a comparison of students and educators*. Paper presented at Mudd Design Workshop: Design Thinking in Design Education, Claremont, CA.
11. **Marbouti, F.**, Cardella, M., & Diefes-Dux, H. (April, 2015). *A framework to analyze feedback on student's design work*. Poster presented at the 2015 Annual Meeting of American Educational Research Association, Chicago, IL.
12. **Marbouti, F.** (March, 2015). *Create a learning objective-based model to predict students' success*. Paper presented at Learning Analytics and Knowledge Doctoral Consortium, Poughkeepsie, NY.
13. **Marbouti, F.**, Cardella, M., & Diefes-Dux, H. (2014). Student peer feedback on design. *Proceedings of the 2014 IEEE Frontiers in Education Conference*, Madrid, Spain.
14. Rodgers, K., **Marbouti, F.**, Shafaat, A., Jung, H., & Diefes-Dux, H. (2014). Influence of teaching assistants' motivation on student learning. *Proceedings of the 2014 IEEE Frontiers in Education Conference*, Madrid, Spain.
15. Shafaat, A., **Marbouti, F.**, & Rodgers, K. (2014). Utilizing MOOCs for blended learning in higher education. *Proceedings of the 2014 IEEE Frontiers in Education Conference*, Madrid, Spain.
16. Rodgers, K., Tafur, M., **Marbouti, F.**, & Seipel, J. (2014). Physical response to feedback in game-based learning. *Proceedings of the 2014 IEEE Frontiers in Education Conference*, Madrid, Spain.
17. **Marbouti, F.**, Diefes-Dux, H., & Strobel, J. (2014). You may be able to teach early classes, but students may not be awake yet! *Proceedings of the 2014 American Society for Engineering Education Annual Conference*, Indianapolis, IN.
18. **Marbouti, F.**, & Lynch, C. (2014). Assessing doctoral students' employability skills. *Proceedings of the 2014 American Society for Engineering Education Annual Conference*, Indianapolis, IN.
19. Shafaat, A., & **Marbouti, F.** (2014). A model for offering construction education on MOOC platforms. *Proceedings of the 2014 Construction Research Congress*, Atlanta, GA.
20. **Marbouti, F.** (March, 2014). *Identifying at-risk students in a first-year engineering course*. Paper presented at Learning Analytics and Knowledge Doctoral Consortium, Indianapolis, IN.
21. Jung, H., Moon, A., Rodgers, K., **Marbouti, F.**, & Diefes-Dux, H. (2013). Mathematical modeling problems: what affects teaching assistants' ability to provide feedback? *Proceedings of the 2013 Psychology of Mathematics Education North American Chapter Conference*, Chicago, IL.
22. **Marbouti, F.**, & Diefes-Dux, H. (2013). First-year students understanding of direct user in open-ended problem solving activities. *Proceedings of at the 2013 IEEE Frontiers in Education Conference*, Oklahoma City, OK.
23. Moon, A., Jung, H., **Marbouti, F.**, Rodgers, K., & Diefes-Dux, H. (2013). Undergraduate and graduate teaching assistants' perceptions of their responsibilities - factors that help or hinder. *Proceedings of the 2013 IEEE Frontiers in Education Conference*, Oklahoma City, OK.
24. **Marbouti, F.**, & Strobel, J. (2013). Designing an interactive application to support collaborative open-ended problem solving for pre-college students. *Proceedings of the 2013 American Society for Engineering Education Annual Conference*, Atlanta, GA.
25. **Marbouti, F.**, Rodgers, K., Jung, H., Moon, A. & Diefes-Dux, H. (2013). Factors contributing to TAs' ability to execute their responsibilities in a large first year engineering course. *Proceedings of the 2013 American Society for Engineering Education Annual Conference*, Atlanta, GA.
26. **Marbouti, F.**, & Wise, A. F. (2013). Using a graphical interface to address new post bias in online discussion forums. *Proceedings of the 10th International Conference on Computer Supported Collaborative Learning*, Madison, WI.
27. **Marbouti, F.**, & Wise, A. F. (April, 2013). *Design, implementation and testing of graphical interface to support interactions in online discussion forums*. Paper presented at Annual Meeting of the 2013 American Educational Research Association, San Francisco, CA.
28. Nawaz, S., **Marbouti, F.**, & Strobel, J. (April, 2013). *Analysis of the community of learning analytics*. Paper presented at Learning Analytics and Knowledge Conference, Leuven, Belgium.

29. **Marbouti, F.**, & Diefes-Dux, H. (2012). Grading reliability of teaching assistants new to assessment of realistic open-ended problems. *Proceedings of at the 2012 First Year Engineering Experience Conference*, Pittsburgh, PA.
30. Wise. A. F., Hsiao, Y. T., **Marbouti, F.**, & Zhao, Y. (2012). Tracing ideas and participation in an asynchronous online discussion across individual and group levels over time. *Proceedings of the 2012 International Conference of the Learning Sciences*, Sydney, Australia.
31. Wise. A. F., Hsiao, Y. T., **Marbouti, F.**, Speer, J., & Nishan, P. (2012). Initial validation of “listening” behavior typologies for online discussions using microanalytic case studies. *Proceedings of the 2012 International Conference of the Learning Sciences*, Sydney, Australia.
32. Wise. A. F., Speer, J., **Marbouti, F.**, & Hsiao, Y. T. (April, 2012). *Participation in online discussions is about more than making posts: understanding learners’ online “listening” patterns using cluster analysis*. Paper presented at Annual Meeting of the 2012 American Educational Research Association, Vancouver, Canada.
33. Hsiao, Y. T., Wise. A. F., & **Marbouti, F.** (April, 2012). *The impact of task type on learners’ online interaction patterns*. Paper presented at Annual Meeting of the 2012 American Educational Research Association, Vancouver, Canada.
34. Wise. A. F., Hsiao, Y. T., **Marbouti, F.**, Speer, J., & Nishan, P. (April, 2012). *Building a taxonomy of “listening” behaviors in online discussions: case studies of high- and low-activity students*. Paper presented at Annual Meeting of the 2012 American Educational Research Association, Vancouver, Canada.
35. Wise, A. F., Speer, J., Hsiao, Y. T., & **Marbouti, F.** (2011). Factors contributing to learners’ online listening behaviors in online and blended courses. *Proceedings of the 2011 International Conference on Computer Supported Learning*, Hong Kong, China.
36. Wise, A. F., **Marbouti, F.**, Speer, J., & Hsiao, Y. T., (2011). Towards an understanding of “listening” in online discussions: A cluster analysis of learners’ interaction patterns. *Proceedings of the 2011 International Conference on Computer Supported Learning*, Hong Kong, China.
37. Wise. A. F., Hsiao, Y. T., **Marbouti, F.**, & Speer, J. (April, 2011). *Exploring the variety of student interaction styles in online discussion forums: Case studies of thorough, self-monitoring and independent patterns of behavior*. Paper presented at Annual Meeting of the 2011 American Educational Research Association, New Orleans, LA.

## **Service/Volunteer Experience**

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### **Reviewer of IEEE Transactions on Education Journal**

#### **Conference paper reviewer**

- Research in Engineering Education Symposium, 2017
- American Society for Engineering Education (ASSE) annual conference, 2015 & 2017
- Frontiers in Education (FIE), 2013 & 2014
- First-Year Engineering Experience (FYEE), 2012

**Member of Engineering Education Graduate Student Association Social Committee**      *Sep 2012 – May 2014*  
Purdue University

- Organized hiking trips for engineering education graduate students to encourage a supportive community

**Mentor**, International Mentorship Program, Simon Fraser University, Canada      *Aug 2010 – Aug 2011*

- Helped new international students adapt living in Canada to ensure a more positive environment

**Web Programmer**, Drug Abuse Treatment N.G.O., Iran      *May 2009*

- Developed a web based (PHP & MySQL) content management system used as the NGO’s central database

**Technician**, Sharif University of Technology, Computer Engineering Department, Iran      *Oct 2000 – Sep 2001*