Mohammed F Farghally

PERSONAL INFORMATION

Address	16 Taqsim Soliman Al Hakim, Assiut, Egypt
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Email	mfseddik@vt.edu
Website	http://people.cs.vt.edu/mfseddik
Nationality	Egyptian
Birth Date	17th April 1984.
Marital Status	Married
Military Status	Exempted

Languages

- Arabic   Native Language
- English   Excellent (with Toefl iBt score of **105** in 12/03/2010).

POSITIONS:

- Demonstrator, Information Systems Department, College of Computers and Information, Minia University, Egypt. 2006-2009
- Assistant Lecturer, Information Systems Department, College of Computers and Information- Minia University, Egypt. 2010-2012
- Teaching Assistant, Computer Science Department, Virginia Tech, USA. 2016
- Summer Instructor, Computer Science Department, Virginia Tech, USA. 2016
- Research Assistant, Computer Science Department, Virginia Tech, USA. 2015-2016.
- Assistant Professor, Information Systems Department, College of Computers and Information, Assiut University, Egypt. 2017-Now

EDUCATION:

2001-2005

- B.Sc. in Information Systems, July 2005, College of Computers and Information, Assiut University, Egypt.
  - **Overall Grade:**   Excellent with honor (85%).
  - **Graduation Project**:   A Web-based Hospital Management System.
  - **Graduation Project Grade:** Excellent.

2006-2009

- Pre-master studies, July 2007, Faculty of Computers and Information, Cairo University, Egypt.
  - **Overall Grade:**   Good (79.1%).
- M.Sc. in Information Systems, December 2009, Faculty of Computers and Information, Cairo university, Egypt.
  - **Thesis title:** A Location Discovery Model Using Geographical Information Systems and Artificial Neural Networks.

2012-2016
- PhD in Computer Science and Applications, College of Engineering, Virginia Tech, VA, USA, December 2016.
  - **Dissertation title:** Visualizing Algorithm Analysis Topics
  - **Overall GPA:** 3.91
  - **Advisor:** Clifford A. Shaffer
- M.Sc. in Computer Science and Applications (Course-based), College of Engineering, Virginia Tech, VA, USA, December 2016.
  - **Overall GPA:** 3.91
- Preparing the Future Professoriate Certificate, Virginia Tech, VA, USA, December 2016.
  - **Overall GPA:** 4

RESEARCH INTERESTS:

- Digital Education
- Algorithm Visualization
- Interactive Learning Environments
- Pedagogical Evaluation
- Educational Data Mining

RESEARCH EXPERIENCE:

- Masters Scholar, Information Systems Department, Cairo University, Egypt.
  2006-2009
  - Developed a decision support system to guide the Egyptian authorities in finding the best suitable places for establishing new universities and scientific training centers to serve the set of districts all over Egypt. Tools used include: ESRI Map Objects 2.4 via C#, and unsupervised artificial neural networks (Self Organized Feature Maps).

- PhD Scholar and Research Assistant, Computer Science Department, Virginia Tech, USA.
  2012-2016
  - Developed a set of Algorithm Visualizations and interactive exercises with automated assessment for the OpenDSA eTextbook system.
  - Devised and evaluated a new approach named Algorithm Analysis Visualizations (AAVs) to visualize algorithm analysis topics in CS3-level courses.
  - Developed a pilot version of the Algorithm Analysis Concept Inventory (AACI) that can be used as a standardized instrument to detect student misconceptions in CS3-level algorithm analysis topics.
  - Participated in a study to identify hard topics in CS3-level courses. Techniques used included: Item Response Theory (IRT) and Logged Data Analysis.

- Academic Publication Reviews
  2015-Now
    - ACM Special Interest Group on Computer Science Education (SIGCSE) conference.
    - ACM Annual Conference on Innovation and Technology in Computer Science Education (ITiCSE).

TEACHING EXPERIENCE:

- Demonstrator and Assistant Lecturer, Faculty of Computers and Information, Minia University, Minia, Egypt.
  2006-2012
  During this period I was responsible for:
    - Lab and recitation sessions for the following courses:
        - Introduction to Structural Programming (Freshman).
        - Introduction to Computer Studies (Freshman).
        - Introduction to Information Systems (Sophomore).
        - Data Structures (Sophomore).
        - Software Engineering (Junior).
        - Database Management Systems (Junior).
        - Systems Analysis and Design (Junior).
        - Geographical Information Systems (Senior).
    - Lecturing the following courses:
        - Social Network Analysis (Senior).
        - Systems Analysis and Design (Junior).
        - Crisis Management Information Systems (Senior)
        - Geographical Information Systems (Senior).
- Teaching Assistant, Computer Science Department, Virginia Tech, USA
  2016
    - Responsible for project support and course grading work for CS3114 Data Structures and Algorithms.
- Summer Instructor, Computer Science Department, Virginia Tech, USA
  2016
    - Lecturing CS3114 Data Structures and Algorithms (Junior).
- Assistant Professor, Information Systems Department, Assiut University, Egypt
  2017 – Now
    - Lecturing the following courses:
        - Web Programming (Junior)
        - Web Information Systems (Senior)
        - Strategic Information Systems (Junior)
        - Social Network Analysis (Senior)

AWARDS:

- Governmental PhD scholarship supported by the Egyptian Ministry of Higher Education and the VT-MENA program of Egypt.

- Exemplar paper award, ACM Special Interest Group on Computer Science Education (SIGCSE) conference, Seattle, USA, March 2017.

PUBLICATIONS:

- **Farghally, Mohammed F.**, Kyuhan Koh, Hossameldin Shahin, and Clifford A. Shaffer. "Evaluating the Effectiveness of Algorithm Analysis Visualizations." In Proceedings of the 48th ACM Technical Symposium on Computer Science Education, 2017. ([Link](#))
- **Farghally, Mohammed F.**, Kyuhan Koh, Jeremy V. Ernst and Clifford A. Shaffer. "Towards a Concept Inventory for Algorithm Analysis Topics." In Proceedings of the 48th ACM Technical Symposium on Computer Science Education, 2017. ([Link](#))
- **Farghally, Mohammed F.**, Eric Fouh, Sally Hamouda, Kyu Han Koh, and Clifford A. Shaffer. "Visualizing Algorithm Analysis Topics". In Proceedings of the 47th ACM Technical Symposium on Computer Science Education, pp. 687-687, 2016. ([Link](#))
- Fouh, Eric, **Mohammed F. Farghally**, Sally Hamouda, Kyu Han Koh, and Clifford A. Shaffer. "Investigating Difficult Topics in a Data Structures Course Using Item Response Theory and Logged Data Analysis." In Proceedings of the 9th International Conference on Educational Data Mining, Raleigh, NC, 2016, pp. 370-375. ([Link](#))
- E. Fouh, S. Hamouda, **M.F. Farghally**, and C.A. Shaffer, "Automating Learner Feedback in an eTextbook for Data Structures and Algorithms Courses". In Challenges in ICT Education: Formative Assessment, Learning Data Analytics and Gamification, Santi Caball and Robert Claris, eds., Elsevier, 2016, pp. 135-165. ([Link](#))
- Eric Fouh, Daniel A. Breakiron, Sally Hamouda, **Mohammed F. Farghally**, and Clifford A. Shaffer, "Exploring students learning behavior with an interactive eTextbook in Computer Science Courses", Journal of Computers in Human Behavior, pp.478-485, 2014. ([Link](#))
- Kyuhan Koh, Eric Fouh, **Mohammed F. Farghally**, Hossameldin Shahin, and Clifford A. Shaffer, "Experience: Learner Analytics Data Quality for an eTextbook System". Accepted at the ACM Journal of Data and Information Quality, 2017.

TECHNICAL SKILLS:

Programming Languages
- Java
- Python
- C#
- C++

Web Technologies
- ASP.Net via C#
- PHP

- JavaScript
- HTML5
- CSS

Database Skills
- MySQL Server
- Microsoft SQL Server
- Microsoft Access

Operating Systems
- Windows 98/ME/XP/7/8/ Linux Ubuntu

Geographical Information Systems Skills
- ESRI ARCGIS
- ESRI Map Objects via C#

COMMUNITY SERVICE:

- Served as a board member for the Islamic Center of Blacksburg (ICB).
- Served as a Friday program volunteer at the Western Virginia Regional Jail.

REFRENCES:

Prof. Clifford A. Shaffer
Computer Science Department, Virginia Tech.
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(540) 231-4354

Dr. D. Scott McCrickard
Computer Science Department, Virginia Tech.
mccricks@cs.vt.edu
(540) 231-6698

Dr. Kyu Han Koh
Computer Science Department, California
State University Stanislaus.
kkoh@csustan.edu
(209) 667-3846

Dr. Jeremy V. Ernst
Department of Education, Virginia Tech.
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(540) 231-2040