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Nouhad Rizk

7127 HARWICH LN, MISSOURI CITY, TX 77459

(832) 244 - 6150 • NJRIZK @UH. E D U

EDUCATION

PhD in E-learning **2007**

Leicester University, United Kingdom

Dissertation title: "Technology Applications in Education: Electronic systems to improve curriculum management (E-learning)"

DESS (Master+1), Computer Science **1984**

University of Nancy, France

Dissertation title: "Syntax Analyzer under IBM 4331 to recognize the Basic language from Micral 90, connected to the IBM"

M.S in Computer Science **1983**

E.P.S.I.L (School of Technology), Lebanon

WORK EXPERIENCE

Director of Undergraduate studies **2016 - Present**

Computer Science Department, University of Houston

- Planned and implemented peer mentor program
- Planned and implemented skill-based workshops
- Coordinating all sections of all undergraduate courses to ensure a consistent learning environment
- Involved in redesigning sample syllabi for all 14 required courses (ex-officio undergrad committee)
- Advising

Instructional Associate Professor **2012 - Present**

Computer Science Department, University of Houston

Instructional Assistant Professor **2007 - 2012**

Computer Science Department, University of Houston

Senior Lecturer 1993 - 2006

Computer Science Department, University of Notre Dame

- Teaching undergraduate and graduate courses: Database Management, Database Processing (Access, SQL), Operating Systems, Computer Organization and Assembly, Computer Architecture, Data structures, Object oriented paradigm, Languages: C#, C/C++, Pascal, Fortran, Cobol, Java, Caml, Web designing, JavaScript HTML, XML , Ajax, Computers and their use Microsoft Office Products: Access, Excel, Power Point, Word, Outlook) , and Multimedia Literacy (flash, Dreamweaver).
- Supervised different type of projects under Windows, UNIX and Linux platforms. Some projects are implemented in different database such as access, SQL, mySQL and different languages such as PHP, XML, C++, and C#. Examples of projects accomplished: stock management, e-learning projects on the web, school management, car rental, Ip-telephony in a hotel management application, managing surveys, university registration system, school payroll system, bank situation, driving test project, optic shop management, gallery furniture store management, retail management applications.
- As IEEE counselor, attend and participate in national/international conferences.
- Volunteered information technology consultant for technical schools and some industries.

Adjunct Professor **1990 - 1993**

Computer Science Department, Annunciation Technical School, Lebanon

- Taught Computers Information System and File Structures.

Adjunct Professor**1989 - 1990***Computer Science Department, International Institute Technical School, Lebanon*

- Taught Algorithmic and File Structures.
- Led computer science senior projects.

**Information Technology Consultant
2006****1989 -***Computer Science Department, Annunciation, International Institute*

- Consultancy for technical schools and some industries
- Participated in the design and implementation of computer science courses.
- Gave chairpersons practical solutions tailored to address an updated curriculum which can face challenges of fast pace of advances in technology and the workplace needs.
- Updated curriculum by introducing new courses and deleting obsolete courses.
- Advised managers on the best way to use information technology to meet their business objectives.
- Helped in planning, designing and deploying IT systems.

Chief Information Officer**1985 - 1994***Computer Science Department, University of Notre Dame*

- Manage the computer department, to plan and design a computer system that met the company's need which includes accounting system, stock management and payroll and to write, test, implement, maintain and update programs.

A. TEACHING AND STUDENT LEARNING**1. Student Evaluations of teaching**

For the last seven years courses I taught, I had a mean score of 4.27 compared to 4.18 for the department, based on the evaluations' 5-point scale. Below are the overall scores based on the end of term evaluations for COSC courses in which I was the instructor.

2. Course and Program Development and/or Revision.**a. Course Development**

I always enjoy combining my passion for teaching and my eagerness to stay up-to-date with technological advances to engage students and to motivate them to be active learners with a thirst for discovery and knowledge. Previously, I contributed in designing Computer Organization (COSC 2410) and Computer Architecture (COSC 3330) courses, and later reorganized and updated the course materials of the combined course "Computer Organization and Architecture" (COSC 2440), making students first exposure to hardware pleasurable. Recently, I designed the new data science course (COSC 3337), this was a challenge since data science is a combination of three topics: statistics, data mining and programming skills. Recognizing that the cost of textbooks is a significant burden to the success of students and in the purpose of consolidating different materials in one book, I was selected to create an open textbook, Building Skills for Data Science, to be published December 2019. To improve student outcomes and address achievement gaps, I proposed changes to requirements for the undergraduate major and minor and implemented changes approved by University of Houston Undergraduate Committee by adding a new minor in data science and two new capstones: the gaming capstone and the data science capstone.

b. Peer Learning

I updated my teaching strategy to foster collaboration for success. I am highly in favor of peer learning, which is a powerful method for sharing knowledge, ideas, and experience, and influences student-learning outcomes in a positive, measurable way. In all my courses, “group assignments” enhance students’ academics abilities as well as social abilities. “Paired for research” is another kind of assignments which a great opportunity is to inspire curiosity in my students, to make them engaged and independent learners. I have also added new games to collaborate, learn and have fun by doing team competitions using clickers in addition to “Who Wants to Be a Millionaire” and “Jeopardy” games.

I strive to instill a passion for computer science in young adults and implemented a peer mentor program to help low performing students. In addition, I have mentored and advised many students and helped them tackle research opportunities designed for undergrad and encouraged second-year students to participate in.

My goals are to remove barriers, to create a supportive atmosphere and to make the field as exciting as it can be. I implemented a skill-building workshop series where an undergrad student shares her/his knowledge. The attendance rate is an indicator of the success of this series.

c. Recruitment and retention

In addition to the peer mentoring program and the skill-building workshops, my aim is to change the students’ perspective in order to get the best solutions to pressing problems and to believe that computer science and technology is a world that embraces everyone who has passion, ability and interest by creating more opportunities in the future and by taking effective steps to increase recruitment and retention of young students.

My commitment to support and to advise students leads me to implement a weekly meeting “Meet the Director” where students are encouraged to branch out in their coursework and explore academic pursuits beyond their focus or major. The meeting allows students to take advantage of the opportunity to have experts advising them on how to move beyond college student duties and to become, more motivated students, and to be involved in many activities and undergraduate research. In order to improve the computer science presence at the university level, I developed and implemented a recruitment plan for undergraduate students to be involved in research programs: Accelerated MS/BS, Research Experience for undergrad (REU), the Provost’s Undergraduate Research Scholarship (PURS), the Summer Undergraduate Research Fellowship (SURF). The percentage of students joining these programs is a good indicator of the success of my plan. In the future, I plan to develop a program that integrates the undergrad researcher in the workplace, and to develop a framework for integrating research and service-learning effectively into computer science curriculum.

d. Faculty development

Moreover, I persevere with attending a faculty development series, which supports my proficiency in teaching and improves my approaches to developing efficient research and communication skills. I lately attended a workshop on “Open Educational Resources” as I am seeking to incorporate OER into my courses. I succeeded in winning two awards. The first award was an incentive to explore the opportunity to develop the experiential and practical knowledge and skills to engage with OER in my practice. The second award was an accepted proposal to create an OER for the University of Houston library on data science topics. To share my developed knowledge with my colleagues, I take the initiative to hold a faculty development workshop on the topic: “*Data Storytelling: Framing Your Data as a Story.*”

3. Other Evidence of Student Learning.

a. Gamification for engagement

The clear and compelling evidence of students learning is their own ratings of their knowledge and skills and reflections on what they have learned in the course. I use a classroom response systems (clickers) to engage students in the classroom. I always use some gaming and a fun layout of questions such as team competitions, Who Wants to be a Millionaire, and Jeopardy. Besides being fun and engaging students, this technology is used to check their understanding of a concept, and they receive immediate feedback. When feedback is given immediately after showing proof of learning, the student responds positively and remembers the experience about what has been learned in a confident manner. I use the polling results to review some important course material in which the higher percentage of students did not answer correctly. I encourage students to develop research experience and/or presentations at the end of the semester. For example, in computer architecture, I suggest a list of advanced architecture products on the market today for the students to reflect on and present their findings. In programming courses, a fun, game-oriented end-of- the-semester project is required to be presented.

b. Students' evaluations

Student evaluations comments give a clear proof about my effective teaching style. I selected some:

- Professor Rizk's lecture was logic and clear. I enjoyed the lecture since I can learn new things every class.
- Dr.Rikz is a very excellent professor that help you understand and learn well about the course and your major, also helpful for you to do well for your job in the Future **(student misspelled my name)**
- The instructor does well to promote learning
- The instructor was fantastic at approaching the subject from the point of view of someone learning it for the first time, making the material easy to digest. She was also concise and efficient at going through the information.

c. Research Opportunities

The research process impacts valuable learning objectives that have lasting influence as undergraduates prepare for professional service. As faculty, I believe the research experience is extremely valuable for our students. The research benefits students in areas that can reach beyond academia such as having tolerance for obstacles, learning to work independently, understanding how knowledge is constructed, self-confidence, understanding that assertions require supporting evidence, and clarification of a career path.

d. Competitions

I believe in “compete to succeed”. In other words, involving students in competition is educating, inspiring, and empowers them to be the best they can possibly be. Competitive Programming enhances students problem-solving skills and teaches them how to work in a team, how to show a genuine commitment to the team and how to contribute to the team’s work.

I founded the NSM-IEEE student Branch and I succeeded in adding University of Houston as a site contest at the South-Central USA Regional Contest of the Association for Computing Machinery (ACM), the International Collegiate Programming Contest, known as the ICPC.

I am a faculty coach for Adobe Analytics Challenge. The Adobe Analytics Challenge has been a unique analytics-focused business case competition where university students are given the opportunity to use Adobe's industry-leading analytics products and access to real-world data from leading organizations.

As a coach, I have been successful in developing a team mentality and in encouraging students to compete with ambition in the following competitions:

- **IEEEXtreme is a global challenge in which teams of IEEE Student members compete in a 24-hour time span against each other to solve a set of programming problems.**
- **ACM_ICPC** is an annual multi-tiered competition among the universities of the world.
- **Adobe Analytics Challenge** uncovers the brightest minds and most passionate talent in analytics
- **The Kaggle** is specific to data science and data analytics problem solving. (in preparation)..

4. Evidence of the scholarship of teaching

For a decade I had great success as a teacher: positive feedback, strong evaluations, evidence that students learned something in my courses. To better understand why certain students did better than others, I found myself searching for a means through which the quality of teaching may be assessed, a way to enhance students' experience of learning, a means by which my profile as an instructor may be enhanced, and a way of stimulating interest in teaching.

a. Self-assessment

Even though I won the following awards: Alternative Textbook Incentive Program (ATIP) in 2019 and in 2018; University of Houston Teaching Excellence Award in 2017 and the Department Teaching Excellence Award in 2012, I believe there are always ways to improve one's teaching. Three years ago, I decided to revise my teaching by introducing a self-assessment component to measure how well students know the material I teach. Performance evaluations help me recognize where they stand and how they are performing. Self-assessments cannot merely be once a semester as they are part of an ongoing and regular practice of reflection to help me improve the class. In fact, I run a self-assessment three times a semester, before each exam based on the skill learned in the course. Students will have the opportunity to reflect and measure their own knowledge/performance on each skill learned by selecting one of these options: I know it very well, I can teach it to others; I know it very well, I know how to do it; I know how to do it most of the time, but sometimes I need help; I know how to do it some of the time, but I often need help; I cannot do it

b. Team building

In this process of reflection and redesign, I resolved to make every course component intentional. That is, I tried to articulate for myself the reasoning behind every aspect/skill of the course. Changing the status of my teaching from traditional to ongoing investigation is an excellent move for a scholarship of teaching.

This past year, I introduced the classroom team building strategy for student success. By applying data science algorithms, the classification of groups in my classroom is optimal; the group cohesion, efficiency and communications prove to be a good predictor of the success of all group members

The approach I have used relies on the work of the early 20th Century clinical psychologist, Carl Jung and later popularized and commercialized by the two educators Myers and Briggs. It

uses on individual assessment of cognitive styles, or the way that everyone receives and communicates information and how that interaction impacts team dynamics and performance. Generally, it requires the student to take a standardized assessment using an instrument of their own cognitive style, then learn the style of their team mates in order to adapt their communication and task assignment strategy according to a desired team performance outcome. My future focus on this aspect will require certain amount of learning about the styles as part of the class curriculum in order to be effective, hoping that my approach will be an effective team performance optimization technique.

c. Student enrichment

My own engagement with the scholarship of teaching leads me to raise questions about the relationship between students' prior understanding and their capacity to acquire new understanding; and about the relationship within groups that have certain key combinations of personalities and their ability to boost the group effort to succeed. This will be my next focus of inquiry. I want to learn more not only about my students' entering knowledge and their ability to collaborate efficiently with their peers, but how their self-awareness of learning might help them develop a deeper understanding of certain disciplinary principles more quickly and meaningfully.

B. RESEARCH, SCHOLARSHIP AND OTHER CREATIVE CONTRIBUTIONS

1. Scholarly/Creative Work

Book

Building Skills for Data Science, expected publishing date December 2019.

Chapter in a Book

N.Rizk "Parallel and Evolutionary Approaches to Computational Biology", In the book "Parallel Computing for Bioinformatics" by Albert Zomaya Wiley and Sons Publishers. New Jersey, 07030 5774, 2006.

Publications

N.Rizk, P. DeCarlo, Z. Mughal "The overview and evaluation of an expert system for delivering dynamic curriculum assessments in college institutions", In the Journal "the International Association for Technology, Education and Development (IATED)" vol 2010, pp. 557-566, U.S.A, 2010.

N.Rizk, P. DeCarlo, "The Design and Development of an Expert System Prototype for Enhancing Exam Quality", in the Journal "International Journal of Advanced Corporate Learning" (iJAC) vol 3, no. 3, 2010.

N. Rizk, S. Garbajal “Hierarchical Reinforcement Learning with Grammar- Directed GA-P”, in the “International Journal of Soft Computing”, vol.1, no.1, pp. 52- 60, SPAIN 2006.

<http://medwelljournals.com/abstract/?doi=ijscomp.2006.52.60>

N. Rizk, “Parallelization of IBD computation for determining genetic disease”, Journal “Concurrency and Computation” By John Wiley and Sons Publishers, vol 16, pp. 933-943, New Jersey 2004

Conference Presentations

N. Rizk, P. Romero “A Recommendation System for Student Academic Progress” Data mining and Knowledge engineering. ICDMKE, Proceedings, 2019

N. Rizk, N. Bacchus “Using Data Science Algorithms to Enhance Student Group Performance’ International Conference of Education, Research and Innovation, ICERI, Proceedings, 2019

N. Rizk “Real-Time Skill Assessment Data Mining Model to enhance students’ performance”, International journal of education and information technology, vol 10, pp. 218-222, 2016.

R. Jidagam, **N. Rizk** “Evaluation of Predictive Data Mining Algorithms in Student Academic Performance”, INTED Proceedings, 2016.

R. Jidagam, **N. Rizk** “FSS: A Faculty Support System for Student Academic Performance Analysis”, ICERI Proceedings, pp.852-861, 2015

P. K. Amalaman, C.F. Eick, **N. J. Rizk** “Using Turning Point Detection to Obtain Better Regression Trees”. MLDM 2013: pp. 325-339

C.-S. Chen, N. Shaikh, P. Charoenrattanakul, C.F. Eick, **N. Rizk**, and E. Gabriel, “Design and Evaluation of a Parallel Execution Framework for the CLEVER Clustering Algorithm”, presented at Parallel Computing Conference 2011 (ParCo), acceptance rate: 31%, Ghent, Belgium, September 2011; published in K. De Bosschere et al. (Eds.), Application and Tools and Techniques on the Road to Exascale Computing, IOS Press, pp. 73-80, May 2012

C. Chen, N. Shaikh , P. Aroenrattanakul, C. F. Eick , **N. Rizk** and E. Gabriel “Design and Evaluation of a Parallel Execution Framework for the CLEVER Clustering Algorithm”, In International Conference on Parallel Computing (PARCO 2011), Ghent, Belgium, 2011.

C. Chen, C. F. Eick, **N. Rizk** “Mining Spatial Trajectories Using Non-parametric Density Functions”, in the Proceedings of International Conference on Machine Learning and Data Mining (MLDM 2011), pp.496-510. New York, USA, 2011. <https://dl.acm.org/citation.cfm?id=2033874>

D.J. Kim, H. Al-Mubaid, K-B Yue, and **N. Rizk**, “From Expectation to Actual Perception after Experience: A Longitudinal Study of the Perceptions of Student Response System”, in the proceedings of Americas Conference on Information Systems (AMCIS 2011), pp 401. Detroit, USA, 2011.

N. Rizk, N. Shaikh, “The Usage of A Hybrid Course to Enhance Student Engagement and Success”, in the proceedings of “The International conference on E-learning on the Workplace” (ICELW2011), New York, USA, 2011.

N. Rizk, P. DeCarlo, Z. Mughal, “The overview and evaluation of an expert system for delivering dynamic curriculum assessments in college institutions”, in the proceedings of “The International Conference of Education, Research and Innovation” ICERI 2010, Madrid- Spain, 2010.

2. Educational data mining (sub-lab)

Leader of the Educational data mining group within UH-DAIS led by Dr. Christoph Eick. Since 2013, I have focused my research on Educational Data mining within UH Data analysis and Intelligent Systems Lab (UH-DAIS) lead by Dr. Eick.

3. Research Proposals:

Title of the APPROVED preproposal: NSM Digital

Storytelling PI: Nouhad Rizk

Co-PI:

Christopher

Eick Co-PI:

Sarah

McNeil

Funding agency: The Texas Legislature

special funding Amount requested: \$ 15,000

Title of the grant proposal: Design and development of a competency-based student support system to enhance student retention and improve student educational outcomes

PI: Sarah

McNeil

Co-PI:

Nouhad

Rizk

Co-PI : Christopher Eick

Funding agency: Institute of

Education Sciences Amount

requested: \$ 1,397,988.00

C. SERVICE AND ADMINISTRATIVE DUTIES

1. Service to the Department, College, and University:

Director of Undergraduate Studies,	2016-present
ACM-ICPC Site Director at UH	2019
Member of NSM Grievance Committee	2019
Advisor Smash Club organization	2019
CS Undergraduate Committee (ex-officio);	
Advisor at Research Experience for undergrad	2019
Advisor Undergrad Senior Honors thesis	2019
Computer Science Advisor	2016- Present
Faculty senate	2018- Present
Chair of the University of Houston Teaching Excellence Award	2018- Present
Member of the Esther Farfel Award committee	2018 -Present
Member of NSM Undergraduate Committee	2016- Present
Member of UH Undergraduate committee	2018-Present
Member of the Student Fees Advisory Committee (SFAC) committee	2018-Present
Member of the International Education fee scholarships	2018-Present
Member of the advance Task force committee and NSM representative	2018
Member of the search committee	2016-2018
Chair of NSM Grievance Committee	2016
Implementing a Peer Mentor Program at the computer Science department	2017
Organizing Skill-Building Workshop series	2017
Open Educational Resource workshop participant	2017
Mentor SURF Summer Undergraduate Research	2017
Seminar, Educational data mining, Honors College University of Houston, Central	2017
Coach "Competitive Programming" Teams of IEEE-Xtreme	2016 -
Building Workshop series	2017
Google game programming (1st Prize)	2017
Coach ICPC/ACM our team made it to the national and ranked 5 th	
Advisor LSA organization	2008-Present
Adobe Analytics Challenge Mentor	2019

Master Advisor

Advisor master's in data science Math	2019
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Faculty Development Workshop

Data Storytelling: Framing Your Data as a Story	2019
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IEEE Student Branch

Founder and Counselor of College of Natural Sciences and Mathematics. STB16733, school code 2502501 –2015

Founder of UH-ACM-ICPC Site Contest

Founder of the ACM International Collegiate Programming Contest site at University of Houston. ICPC is an algorithmic programming contest for college students. It is one of the oldest, largest, and most prestigious programming contests in the world.

2. Service to the Profession/Academic Discipline:

Women Who Code Technical Leader	2018- Present
Invited speaker at Big Data Analytics & Data Science	2019
Judge at the Gulf Coast Undergraduate Research symposium at Rice University	2017- Present
Consulting services for Cancer Prevention Research at MD Anderson	2015-2017
Seminar Robotech University of Houston, Downtown	2017
Recruiting- Seminar AUB-Lebanon	2016
Member of Editorial Review Board Egyptian Computer Science Journal I S S N : 1110-2586 http://ecsjournal.org/JournalBoard.aspx)	2018- Present

➤ **Ph.D Thesis External Reviewer**

2019-**Present**

"R.Senthilkumar(11260631062) “Performance analysis on machine learning and cryptographic techniques for secured data storage and communication in cloud”, pursuing Ph.D. (Computer Science) from Anna University - Chennai, India)

➤ **co-supervisor, for PhD student**

Mahmoud Mohamed Bassiouni ,

2019-**Present**

Thesis title

"Computational Intelligence for the automated diagnosis of congestive heart failure using Electrocardiogram (ECG) signals”

➤ **External Examiners for the following Ph.D. Dissertation.**

2019-**Present**

Research Scholar

Bhaludra Raveendranadh Singh

Research Director Dr. B. Raja Srinivasa Reddy

Title of the Thesis

“Exploring the Opportunities And Implications Of Mining As A Service Layer In Cloud Computing”

Program Committee Member

- International Workshop on Big Data and Networks Technologies Leuven (Belgium) 2017
- Knowledge Engineering in BioMedical Informatics and Digital Health, Varna (Bulgaria) 2017
- IEEE Global Engineering Education Conference, Athens, Greece April 26-28, 2017

Advisory Committee Member

- Organizing Committee Member Big Data Analytics and Data Science 2019
- International Journal of Bio-Medical Informatics and e-Health 2018
- IEEE Explore Organizing committee member 2018
- International Symposium on Computer Sciences and Applications 2017

Professional Memberships

- IEEE Counselor & Member
- ACM Member

Professional Connections

Coordinator in the agreement between NSM College and NASA, to recruit students for research. 2019