Soheyla Amirian, Ph.D.

Lecturer, School of Computing, University of Georgia
Director, AMIIE Laboratory

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Laboratory Homepage	https://amiielab.github.io/
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RESEARCH INTERESTS

Technical   Explainable, Interpretable, and Accountable AI and Machine Learning

Application   Health Informatics

PROFESSIONAL SUMMARY

- +15 years of experience in offering mentorship and leadership to students
- +23 years experience in teaching computer science
- +6 years of experience in designing, implementing, and leading research studies in applied Artificial Intelligence (AI) and Machine Learning (ML)
- +6 years of experience in applying AI/ML to Image Analysis and Computer Vision
- +8 years of experience in publishing scientific papers capturing research impacts
- +23 years of programming skills

EDUCATION

Aug 2021   **Ph.D. in Computer Science**, University of Georgia, USA
Advisor: Prof. Hamid R. Arabnia;
Research area: Computer Vision, Deep Learning, Image/Video Captioning
Thesis: "An Integrated Approach for Video Captioning and Applications"

Mar 2013   **M.Sc. in Information Technology Engineering, Computer Networks**, Amirkabir University of Technology (Tehran Polytechnic), Iran

Oct 2006   **B.Sc. in Computer Engineering- Software,** Azad University of Lahijan, Lahijan, Iran

MAJOR AWARDS

Sep 2022   **ACM Richard TAPIA Conference** Scholarship, Washington D.C., USA

Apr 2021   **Outstanding Teaching Assistant (OTA) Award**, UGA, USA

Apr 2021   **CRA-WP Grad Cohort for Women** Scholarship, Virtual (because of COVID-19), USA

Sep 2020   **ACM Richard TAPIA Conference** Scholarship, Virtual (because of COVID-19), USA

Dec 09, 2019   Named a Finalist of the **2020 NCWIT (National Center for Women and Information Technology) Collegiate Award,** USA

Dec 06, 2019   **CSCI 2019 Outstanding Achievement Award,** The 2019 International Conference on Computational Science and Computational Intelligence, Las Vegas, NV, USA
CSCI 2019 Sponsored

Oct 01, 2019   **Anita Borg Grace Hopper** (GHC 19) Scholarship, Orlando, FL, USA

Feb 2019   **NVIDIA GPU** Grant, **NVIDIA**

Apr 2018   **CRA-W Grad Cohort** Scholarship, San Francisco, CA, USA

Dec 03, 2017   **POOIA** (Professional Organization of Iranian-Americans) Student Scholarship, USA

2014   **Best Paper Award** for "Issues of borders and security challenges in sensor networks", Regional Computing Conference on Sustainable Development of Border Security, Islamic Azad University, Shirvan Branch, North Khorasan, Iran

RECENT PUBLICATIONS

Google Scholar profile: Please Click Here

1. **Amirian, Soheyla**, Ghazaleh, Husam, Assefi, Mehdi, Kremers, Hilal Maradit, Arabnia, Hamid R., Plate, Johannes F., and Tafti, Ahmad P., "Word Embedding Neural networkst to Advance Knee Osteoartheritis Research", in Computational Science and Computational Intelligence; 2022 International Conference on IEEE CPS (IEEE XPLORE, Scopus), 2022.

2. **Amirian, Soheyla**, Taha, Thiab R., Rasheed, Khaled, and Arabnia, Hamid R., "Generative Adversarial Network Applications in Creating a Meta-Universe", in Computational Science and Computational Intelligence; 2021 International Conference on IEEE CPS (IEEE XPLORE, Scopus), ISBN: 978-1-6654-5841-2, pp. 175-179, 2021.

3. **Amirian, Soheyla**, Taha, Thiab R., Rasheed, Khaled, and Arabnia, Hamid R., "An Integrated Approach for Video Captioning and Applications", The 2021 World Congress in Computer Science, Computer Engineering, and Applied Computing (CSCE'21), IEEE, 2021.

4. **Amirian**, Soheyla, Farahani, Abolfazl, Rasheed, Khaled, Arabnia, Hamid R., and Taha, Thiab R., "The Use of Video Captioning for Fostering Physical Activity," in Computational Science and Computational Intelligence; 2020 International Conference on IEEE CPS (IEEE XPLORE, Scopus), ISBN-13: 978-1-7281-7624-6, pp. 611-614, 2020.

5. **Amirian**, Soheyla, Rasheed, Khaled, Taha, Thiab R., and Arabnia, Hamid R., "Automatic Image and Video Caption Generation with Deep Learning: A Concise Review and Algorithmic Overlap," in IEEE Access, vol. 8, pp. 218386-218400, 2020.

6. **Amirian**, Soheyla, Rasheed, Khaled, Taha, Thiab R., and Arabnia, Hamid R., "Automatic Generation of Descriptive Titles for Video Clips Using Deep Learning," in in Springer Nature - Research Book Series: Advances in Artificial Intelligence and Applied Cognitive Computing, Transactions on Computational Science and Computational Intelligence; Springer ID: 89066307 (Book ID: 495585_1_En), ISBN #: 978-3-030-70295-3, 2020, pp. 17–28.

7. Fowler, Jonathan, and **Amirian, Soheyla**, "Integrated Plant Growth and Disease Monitoring with IoT and Deep Learning Technology," in Springer Nature - Research Book Series: Transactions on Computational Science & Computational Intelligence; Series Title: Advances in Data Science & Information Engineering, Springer ID: 89066304 (Book ID: 495582_1_En), 2020, ISBN #: 978-3-030-71703-2, pp. 389-395.

8. Toutiaee, Mohammadhossein, **Amirian, Soheyla**, Miller, John A., Li, Sheng, "Stereotype-Free Classification of Fictitious Faces," in arXiv:2005.02157, 2020.

9. **Amirian**, Soheyla, Rasheed, Khaled, Taha, Thiab R., and Arabnia, Hamid R., "Image Captioning with Generative Adversarial Network," in Computational Science and Computational Intelligence; "Artificial Intelligence" (CSCI-ISAI); 2019 International Conference on IEEE CPS (IEEE XPLORE, Scopus), 2019, ISBN -13: 978-1-7281-5584-5, pp. 272-275.

10. **Amirian, Soheyla**, Rasheed, Khaled, Taha, Thiab R., and Arabnia, Hamid R., " A Short Review on Image Caption Generation with Deep Learning", The 23rd International Conference on Image Processing, Computer Vision and Pattern Recognition (IPCV'19), World Congress in Computer Science, Computer Engineering and Applied Computing (CSCE'19), IEEE, 2019, ISBN: 1-60132-506-1, pp. 10-18.

11. **Amirian**, Soheyla, Wang, Zengyan, Taha, Thiab R., and Arabnia, Hamid R., "Dissection of deep learning with applications in image recognition," in Computational Science and Computational Intelligence; "Artificial Intelligence" (CSCI-ISAI); 2018 International Conference on IEEE CPS (IEEE XPLORE, Scopus), 2018, ISBN-13: 978-1-7281-1360-9, pp. 1132–1138.

EMPLOYMENT HISTORY

Aug 2021 –   **Lecturer**
present   School of Computing, University of Georgia
              Faculty fellow, Institute of Artificial Intelligence
              CSCI 2610, CSCI 2611 Discrete Mathematic – Fall 21, 22; Spring 22, 23
              CSCI 1301 Intro Computing Program (Java) – Spring 22, 23; Summer 22, 23
              CSCI 2725, CSCI 2720 Data Structures and Algorithms – Spring 22, Fall 22
              CSCI 1360E Informatics and Data Analytics – Summer 22, 23

2017 – 2021   **Instructor of Record, Lab instructor, and Graduate Teaching Assistant**
              Computer *Science Department, University of Georgia*
              Instructor of Record
              Teaching, Designing, and implementing a classroom system to track student progress, and take steps to ensure academic progress is where it should be - ~100 students for each class
              CSCI 1301 Intro Computing Program (Java) – Fall 2020, Spring 2021

Lab instructor
CSCI 1301 Intro Computing Program (Java) – Spring and Summer 2020
Graduate Teaching Assistant
Supervise students during the non-classroom time and arrange recreational activities of undergraduate students; Work closely with the lead teacher to identify issues students are having and develop appropriate solutions; Attend teacher meetings; Assist with classroom instruction and provide support and guidance to students - ~100 students for each class
(2017-2019) Data structure, Computer Networking, and Computer Architecture organization
(Jun-Dec 2018) Graduate Assistant at the Business Office, Graduate School, UGA.

2000 - 2016   **Lecturer**
Computer Science and IT Department, Kermanshah, Iran
CS courses at the undergraduate level
(2013-2016) Course Coordinator of IT Program, (part-time)
(2006-2016) Lecturer, Technical and Vocational University, (part-time)
(2013-2016) Lecturer, University of Applied Science (Academic Center for Education, Culture, and Research), (part-time)
(2000-2016) Teacher, Technical High School, (full time)

HONORS, VOLUNTEER EXPERIENCES

Honors
- **Member of the Board of POOIA**, Professional Organization of Iranian American in Atlanta, 2023 - present
- **Poster**
  - "Video Captioning and Applications", CRA-WP Grad Cohort for Women, Virtual, USA, Apr, 2021
  - "Stereotype Free Classification in Adversarial Networks", The 2nd Advancing Informatics in Government and Industry event, Georgia Center, University of Georgia, Athens, GA, USA, Nov 22, 2019
  - "Fairness Evaluation in Generative Networks", The annual research day event, Department Of Computer Science, Memorial Hall, University of Georgia, Athens, GA, USA, Oct 25, 2019
  - "Video Caption Generation with Deep Learning", First Annual Computing@SEC, The University of Alabama, Sep 2019
  - "Machine Learning for Solar Radiation Prediction", The annual research day event, Department Of Computer Science, Georgia Center, University of Georgia, Athens, GA, USA, Apr 13, 2018

- **Paper Presentation**
  - "The Use of Video Captioning for Fostering Physical Activity", International Symposium on Artificial Intelligence (CSCI-ISAI), USA, Dec 2020**,**
  - "Automatic Generation of Descriptive Titles for Video Clips Using Deep Learning", The 2020 World Congress in Computer Science, Computing Engineering and Applied Computing (CSCE'20), USA, July 28, 2020 (virtual, because of COVID-19 situation)
  - "Image Captioning with Generative Adversarial Network", International Symposium on Artificial Intelligence (CSCI-ISAI), USA, Dec 2019
  - " A Short Review on Image Caption Generation with Deep Learning", International Conference on Image Processing, Computer Vision, & Pattern Recognition (IPCV'19), Las Vegas, NV, USA, Jul 2019
  - "Dissection of deep learning with applications in image recognition", 5th Annual Conf. on Computational Science & Computational Intelligence (CSCI'18), Las Vegas, NV, USA, Dec 2018

- **Sponsored**
  - **CSCI 2022 ,** Computational Science and Computational Intelligence; "Artificial Intelligence" (CSCI-ISAI)**, Sponsored**
  - **BPC Plans 2022, Denver, Colorado**
  - **CSCE 2022 ,** The 18th International Conference on Frontiers in Education: Computer Science and Computer Engineering (FECS)**, Sponsored**
  - **CSCI 2021 ,** Computational Science and Computational Intelligence; "Artificial Intelligence" (CSCI-ISAI)**, Sponsored**
  - **CSCI 2019 ,** Computational Science and Computational Intelligence; "Artificial Intelligence" (CSCI-ISAI)**, Sponsored**
  - **CSCE 2019 ,** The 23rd International Conference on Image Processing, Computer Vision and Pattern Recognition (IPCV'19)**, Sponsored**
  - **CSCI 2018,** 5th Annual Conf. on Computational Science & Computational Intelligence (CSCI'18), **Sponsored**
- **Travel Grant**
  - International Symposium on Artificial Intelligence (CSCI-ISAI), Dec 2019
  - International Conference on Image Processing, Computer Vision, & Pattern Recognition (IPCV'19), Aug 2019
  - Computational Science & Computational Intelligence (CSCI'18), Dec 13-15, 2018
- **Ranked**
  - **Number Four** in the entrance test for B.Sc. Degree, Computer Software Engineering, Iran (2014)
  - **Number One** in the entrance test for H.Dip., Computer Software, Iran (1998)
- Nominated for a Franklin College **teaching award**, the University of Georgia, 2022
- **Thank-a-Teacher** administered by Associate Director of Center for Teaching & Learning, Center of Teaching and Learning, University of Georgia; reported positive teaching impact; a student states "Thank you so much for being such a

wonderful professor and person! …", 2022

- **Thank-a-Teacher** administered by Associate Director of Center for Teaching & Learning, Center of Teaching and Learning, University of Georgia; reported positive teaching impact; a student states "…You made Discrete math my favorite class of the semester and of my college years so far…", 2022
- **Thank-a-Teacher** administered by Associate Director of Center for Teaching & Learning, Center of Teaching and Learning, University of Georgia; reported positive teaching impact; a student states "Thank you for an excellent introduction to Computer Science. I was quite worried going into this class, but you made it manageable and did a fantastic job explaining the concepts…", 2021

Volunteer Experiences
- **GJSHS 2023 Judge**, the 2023 Georgia Junior Science & Humanities Symposium, Feb 27, 2023
- **Judge – Poster sessions, Tapia 2022,** Washington D.C., USA, sep, 2022
- **Scholarship Reviewer**
  - **2023 CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference (Tapia 2023)**, in the role "Birds of a Feather submission Reviewer, Posters Reviwer, Scholarship Applications Reviewer, Feb 2023
  - **2022 CMD-IT/ACM Tapia Conference**, May 2022
  - **2021 CMD-IT/ACM Tapia Conference**, May 2021
- **Judge - Georgia Science and Engineering Fair**,
  - The Georgia Science and Engineering Fair (GSEF) is dedicated to encouraging all Georgia's teachers and school districts to incorporate active science and engineering research into their classrooms in order to help students, March 31 - April 2, 2021; April 1, 2022; 75th annual GSEF on March 31, 2023
  - **Special Award Judging for the 2021Georgia Science and Engineering Fair-** US Agency for International Development Science Champion Award, March 30 - April 9, 2021

PROFESSIONAL ACTIVITIES & PROFESSIONAL SERVICES

- **Steering Committee Co-Chair**, The 2023 International Conference on Computational Science and Computational Intelligence (CSCI'23), USA, Dec 2023
- **Research Track Co-Chair of Computer Vision and AI,** The 2023 World Congress in Computer Science, Computer Engineering, and Applied Computing (CSCE'23), USA, July 2023
- **International Program Committee member**, ISVC'23 (18th International Symposium on Visual Computing), Oct 2023
- **AMIA member,** American Medical Informatics Association, Feb 2023 – present
- **IEEE Women in Engineering member,** the World's Largest Technical Profesional Organization, Feb 2023- present
- **IEEE member,** the World's Largest Technical Professional Organization, Jan 2023- present
- **Computer Vision Lead,** Hexai Research Laboratory, University of Pittsburg, Aug 2022- present
- **Search Committee member**, School of Computing, the University of Georgia, Sep 2022 - present
- **ACM Professional member**, Association for Computing Machinery, Oct 2022- present
- **Technical Program Committee member**, Advanced Machine Learning and Applications: Federated Learning and Meta-Learning (AML-IoT FLAME 2021), ICMLA, 20th IEEE International Conference on Machine Learning and Applications, June 2021
- **Conference Session Chair**
  - The 2022 International Conference on Computational Science and Computational Intelligence (CSCI'22), USA, Dec 2022
  - The 2022 World Conference in Computer Science, Computer Engineering and Applied Computing (CSCE'22), USA, Jul 2022
  - The 2021 International Conference on Computational Science and Computational Intelligence (CSCI'21), USA, Dec 2021
  - The 2021 World Conference in Computer Science, Computer Engineering and Applied Computing (CSCE'21), USA, Jul 2021 (virtual and in-person sessions)
  - The 2020 International Conference on Computational Science and Computational Intelligence (CSCI'20), USA, Dec 2020
  - International Symposium on Artificial Intelligence (CSCI-ISAI), USA, Dec 2019
  - International Conference on Image Processing, Computer Vision, & Pattern Recognition (IPCV'19), Las Vegas, NV, USA, Jul 2019
- **Paper Reviewer/Referee**
  - IEEE 2021 International Conference on Machine Learning and Applications
  - The Second International Workshop on Bringing Semantic Knowledge into Vision and Text Understanding- IJCAI (Jun 2020 - present)
  - IEEE Access (Jun 2019 - present)
  - The Journal of Supercomputing, Springer (Mar 2019 - present)
- **Mentorship**
  - Mentee: Afsaneh Shams (PhD Student), Computer Science, "Evolutionary Neural Networks to Classify Images", (2022- present)
  - Mentee: Robin Grazulis (Undergraduate Student), Terry College of Business, UGA, Chapter Leader, Harm Reduction Chair, "Ethics in AI world", 2023
  - Mentee: Jacob Glover (Undergraduate Student), Computer Science, "Machine learning Applications using Python libraries and statistical software.", 2022
  - Mentee: Christopher Rountree Hunter (Undergraduate Student), Computer Science, "Learning principles and application of machine learning to be applied to real world data sets and models", 2022
  - More than 30 students, 2000 - 2016

INVITED TALKS & GUEST LECTURER

Talks
- **Invited Panelist**, the 3rd Annual Deep Learning Workshop, the Office of Statistical Counsulting and Training Marquette University, Milwaukee, WI, USA, March, 2023
- **Invited Panelist**, Graduate Faculty Panel, International Student Orientation, University of Georgia, Athens, Georgia, USA, Aug, 2022

- "A Hybrid Teaching Approach for STEM Education", The 18th International Conference on Frontiers in Education: Computer Science and Computer Engineering (FECS), CSCE'2022, Las Vegas, Nevada, USA, Jul, 2022
- **Invited Panelist**, Data4Good and Girls Who Code (Women in Tech), University of Georgia, Athens, Georgia, USA, Oct, 2021
- "Opportunities and Challenges with Video Captioning", in Computational Science and Computational Intelligence (CSCI'20); "Artificial Intelligence" (CSCI-ISAI); International Conference on IEEE CPS (IEEE XPLORE, Scopus), Las Vegas, NV, USA (Dec 17, 2020)
- **Invited Guest Presenter,** 2020 UGA TA Orientation (with 650+ students), Aug, 2020
- Panel discussion of challenges of living as an international in a foreign country, a different language and a different educational environment and culture in the Computer Science Students Orientation, University of Georgia (Aug 12, 2019)
- International TA Orientation: Key teaching assistant policies for international TAs and provide resources related to successful teaching and learning practices, University of Georgia (Aug 07 & 13, 2019)
- Encouraging students specially girls to study at the Computer Science, County high school, Athens, GA, USA (April 2019)
- Panel discussion of challenges of living as an international in a foreign country, a different language and a different educational environment and culture in the Computer Science Students Orientation, University of Georgia (Aug 08, 2018)
- Panel discussion of challenges of living as an international in a foreign country, a different language and a different educational environment and culture in the International Graduate Student Orientation, University of Georgia (Aug 01, 2018)

Guest Lecturer
- "Graphs Applications", University of Pittsburgh, USA (Dec 2022)
- GRSC, Computer Science Department, Athens, GA, USA (Sep 11, 2019)
- An Introduction of Robotics, Computer Science Department, Middle School Students, Athens, GA, USA (Jun 5, 2019)
- An Introduction of Robotics, Computer Graphics class, Undergraduate and Graduate level, Computer Science Department, University of Georgia (Aug 2017)

CERTIFICATIONS, ADDITIONAL SKILLS, & ACTIVITIES

Additional Education & Certificates
- Becoming a Product Manager: A Complete Guide (2022, Linked-in Learning)
- Technical Product Management (2022, Linked-in Learning)
- NLP with Python for Machine Learning Essential Training (2019, Lynda.com)
- Neural Networks and Convolutional Neural Networks Essential Training (2018, Lynda.com)
- Python (2015, Michigan University)
- Cloud Computing (2014)
- Microsoft Service Providers Manager (2008)
- Network Security General Technician, Windows–NT manager (2007)
- Business Skills, Setting up the network structure for a department (2006)
- Management, Microsoft Excel (2004)
- Producing applications for two organizations (2001)

Technical Skills

Specialize in **Image Processing**, **Deep Learning**, **Image and Video Captioning**, Machine Learning, Computer Graphics, Instructional Technology, Networks, Cyber Security, Computer Networks Administration. Productive in both team-based and self-managed projects; dedicated to maintaining up-to-date knowledge and IT skills. Currently, investigating new ways of utilizing Deep Learning methodologies.

Proficient in the following tools/equipment/software:

Different Programming Languages; SQL Server; 3DMax; Hadoop, Packet tracer, OpNet as Network Application Softwares.

Language Skills

Persian (native), English, French, German, Arabic