ANAHITA SANANDAJI

CONTACT

Copeland 236
Ohio University, Athens, OH 45701
Email: anahitas@ohio.edu
Phone: +1(740)-593-2228

EDUCATION

Oregon State University, School of EECS. Corvallis, OR. Sept. 2012 – June 2018
PhD in Computer Science, Human Computer Interaction.
PhD Thesis: Developing Training Strategies for 3D Volume Segmentation by Analyzing the Underlying Human Perception and Cognitive Tasks.
Major Advisor: Dr. Cindy Grimm
GPA: 3.85/4.0

Azad University- North Tehran Branch. Tehran, Iran. June 2012
MSc in Computer Software Engineering.
MSc Thesis: A Detection Mechanism for Network Layer and MAC Sub layer Node Misbehavior in Mobile Ad hoc Networks.
Advisor: Dr. Sam Jabbehdari

Azad University- North Tehran Branch. Tehran, Iran. June 2008
BSc in Computer Software Engineering. *BSc Thesis:* Analysis of Current Routing Protocols in Ad Hoc Networks.

RESEARCH INTERESTS

Data Visualization and Analytics, Information Systems, Human Computer Interaction (HCI), User Experience (UX) Research and Design, Social Computing, Software Engineering and Testing, and Computer Networks.

TEACHING EXPERIENCE

Assistant Professor of Analytics and Information Systems (AIS)
AIS Department at Ohio University, College of Business August 2020 -

Visiting Assistant Professor of Analytics and Information Systems (AIS)
AIS Department at Ohio University, College of Business Fall 2019-June 2020
Business Intelligence and Information Management (MIS 2800)
Advanced Business Intelligence (MIS 4580)

- *Responsibilities:*
  - Developing supplemental materials including step by step guides and videos, new sets of homework assignments, in-class activities, projects, and continuous improvement of the course material.
  - Focusing on the business application of the technical tools and skills covered in the course by incorporating practical, real-world examples based on real data sets in my classes.

– Collaborating with the experienced faculty members in the department on re-designing and improving technical courses.

Instructor at School of Electrical Engineering and Computer Science
Oregon State University Fall 2018-Summer 2019
Accelerated Introduction to Computer Science (CS 165, Ecampus)
Introduction to Usability Engineering (CS 352, Ecampus)

- *Responsibilities:* Developing online technical lectures, re-designing and extending course content (including videos, lectures note, assignments, and exams), grading homework/exams, holding online office hours, and mentoring students.

Instructor at Department of Industrial and Systems Engineering
Ohio University Fall 2018-Spring 2019
Fundamentals of Statistics (ISE 3040)

- *Responsibilities:* Teaching fundamentals of statistics to students in Engineering Technology and Management program, developing class lectures, extending course content, and mentoring students.

Graduate Teaching Assistant at Oregon State University June 2016 – July 2018
Research Methods in HCI/Inclusive Design (CS 419/519)

Introduction to Usability Engineering (CS 352, online and on-campus)

- Helped students become familiar with the basics of usability engineering and how to design, implement and evaluate user interfaces.
- *Responsibilities:* Grading homework/exams, holding office hours, supervising team-based projects, handling course logistics, and extending course content if necessary.

User Experience Design Instructor at Oregon State University Summer and Fall 2013
Introduction to Usability Engineering (CS 352, online and on-campus):

- Helped more than 200 post-baccalaureate students learn user experience skills, to switch into CS careers.
- Designed course material and delivered through Canvas, Blackboard, TEACH, and course websites.
- Helped students become familiar with the basics of usability engineering and how to design, implement and evaluate user interfaces.

Graduate Teaching Assistant at Oregon State University Fall 2012–Spring 2013
Introduction to Usability Engineering (CS 352, online and on-campus):

- Helped students become familiar with the basics of usability engineering.
- *Responsibilities:* Grading homework assignments, holding office hours, and extending course content if necessary.

Teaching Assistant at Azad University, Tehran, Iran Fall 2007–Fall 2012
Courses: Software Engineering, Data Structures, Databases, and Computer Networks.

- *Responsibilities:* Grading homework assignments, holding office hours to help students with homework assignments, preparing term project, and assisting students in their term projects.

PROFESSIONAL EXPERIENCE

Research Associate at Social Media Analytics Research Team (SMART) Lab
Ohio University July 2018–Present

Graduate Research Assistant at Oregon State University Fall 2013–June 2018

Project: Understanding the manual 3D image segmentation process (NSF-funded study)

- Implementing various data mining and statistical techniques to clean, categorize, and analyze large volumes of collected data.
- Visualizing how segmenters interact with segmentation data and tools.
- Developing conceptual models for navigation, marking, and inspection in the context of 3D image segmentation.
- Implemented Tools & UIs:
  1. *VolumeViewer:* An interactive tool for fitting surfaces to volume data. It is being developed as part of a collaboration between several universities and labs. The long term goal of the VolumeViewer project is to improve the overall accuracy and efficiency of the segmentation and segmentation review processes.
     Project website: `http://volumeviewer.cse.wustl.edu/VolumeViewer/Home.html`
  2. Developing a *3D spatial ability test instrument* to measure individual differences in inferring 2D cross-sections of 3D structures.
     Tutorial Demo: `https://youtu.be/S4RgqArzTI0`
  3. *An interactive game* to train inferring cross-sections of 3D objects.
     Training Tool Demo: `https://youtu.be/ZDS2W_V0pyA`
- Language & Technologies: C++, OpenGL, Unity, C#, HTML5, JS, Python, JQuery, PostgreSQL, Qualtrics Survey.

Project: Visualizing social network analysis (SNA) metrics for open source projects

- Goal: Help software developers and project managers to explore metric changes and trends during the forking period as part of their analysis for evaluating and predicting the open source project evolution.
- Developed an effective design and implementation for visualizing SNA metrics of different open source projects during 18 months of forking period.
- Language & Technologies: D3.js, JQuery, HTML5

Project: Intelligent model for traffic flow prediction

- Used machine learning techniques to develop a novel real time prediction model for ramp metering.
- Designed and developed a smart algorithm that utilizes historical traffic data, and traffic measures such as speed, current traffic volume, and breakdown capacity to control ramp signal.

Researcher and Assistant July 2009–Aug. 2012
Network Infrastructure Department, SystemGroup Co., Tehran, Iran

- Design and implementation of new methods for extending the network infrastructure of the company.
- Conducting researches on wireless networks and security, virtualization and cloud computing, data storage, backup and recovery, and Voice over IP.

Network and Security Technician Sept. 2008–July 2009
Network Infrastructure Department, SystemGroup Co., Tehran, Iran

- Monitoring, troubleshooting and solving problems related to different services and applications of the company.

- Teaching network fundamentals to the employees of the company, continuous research activities, and documentation.

PUBLICATIONS

Conference Proceedings

- **Anahita Sanandaji**, Cindy Grimm, Ruth West, and Christopher Sanchez, "A Classification of Difficulties: How to Infer 2D Cross-sections of 3D Structures", *to be submitted to ACM Symposium on Applied Perception, 2020.*
- **Anahita Sanandaji**, Saeed Ghanbartehani, Zahra Mokhtari, and Kimia Tajik, "A Novel Ramp Metering Approach Based on Machine Learning and Historical Data", *Colloquium on Analytics, Data Science, and Computing (CADSCOM) Proceedings, 2018.*
- **Anahita Sanandaji**, Cindy Grimm, and Ruth West, "Inferring Cross-sections of 3D Objects: A 3D Spatial Ability Test Instrument for 3D Volume Segmentation", *In Proceedings of the ACM Symposium on Applied Perception (SAP), 2017.*
  Link to paper: `https://dl.acm.org/citation.cfm?id=3119888`
- Ruth West, Meghan Kajihara, Max Parola, Kathryn Hays, Luke Hillard, Anne Carlew, Jeremey Deutsch, Brandon Lane, Michelle Holloway, Brendan John, **Anahita Sanandaji**, and Cindy Grimm, "Eliciting Tacit Expertise in 3D Volume Segmentation", *The 9th International Symposium on Visual Information and Communication and Interaction (VINCI 2016),* September 2016.
  Link to paper: `http://dl.acm.org/citation.cfm?id=2968235`
- **Anahita Sanandaji**, Jeremy Deutsch, Max Parola, Meghan Kajihara, Anne Carlew, Ruth West, and Cindy Grimm, "Where do Experts Look while doing 3D Image Segmentation", *Proceedings of the Ninth Biennial ACM Symposium on Eye Tracking Research & Applications Pages (ETRA 2016)*, March 2016, pp 171-174.
  Link to paper: `http://dl.acm.org/citation.cfm?id=2857538`
- Michelle Holloway, **Anahita Sanandaji**, Deniece Yates, Amali Krigger, Ross Sowell, Ruth West, and Cindy Grimm, "Guided Structure-Aligned Segmentation of Volumetric Data",*11th International Symposium (ISVC) 2015, published in Advances in Visual Computing*, December 2015, pp 307-317 (Winner best paper award).
  Link to paper: `http://link.springer.com/chapter/10.1007/978-3-319-27857-5_28`
- Gokul Caushik. Mohammd Amin Alipour, Alex Groce, Chaoqiang Zhang and **Anahita Sanandaji**, "Finding Model-Checkable Needles in Large Source Code Haystacks: Modular Bug-Finding via Static Analysis and Dynamic Invariant Discovery", *International Workshop on Constraints in Formal Verification (CFV)*, 2013.
  Link to paper: `https://arxiv.org/abs/1609.06382`

Journal Publications

- **Anahita Sanandaji**, Cindy Grimm, Ruth West, and Christopher Sanchez, "Developing and Validating an Interactive Training Tool for Complex Visual-Spatial Expertise for Inferring 2D Cross-Sections of 3D Structures", *submitted to International Journal of Human-Computer Interaction.*
- Kathryn Hays, Ruth West, **Anahita Sanandaji**, Cindy Grimm, Molly Beyer, Luke Hillard, Megan Kajihara, Brandon Lane, Max Parola, "Expertise in 3D Volume Segmentation: Adapting Dreyfuss Model of Skill Acquisition", *submitted to Bulletin of Science, Technology Society.*

- **Anahita Sanandaji**, Sam Jabbehdari, Ali Balador and Dimitris N. Kanellopoulos, "Mac Layer Misbehavior in MANETs", *Journal of IETE Technical Review*, 2013.
  Link to paper: `http://www.tandfonline.com/doi/abs/10.4103/0256-4602.116722`
- Sam Jabbehdari, **Anahita Sanandaji**, and Nasser Modiri, "Evaluating and Mitigating the Effects of Selfish MAC layer Misbehaviour in MANETs", *Journal of Computing*, Volume 4, 2012.

Refereed Abstracts and Scholarly Posters

- **Anahita Sanandaji**, Cindy Grimm, and Ruth West, "Analyzing Experts Low-level Perception Tasks While Doing 3D Image Segmentation", *ACM Richard Tapia Celebration of Diversity in Computing*, Sept. 2017, Atlanta, GA.
- **Anahita Sanandaji**, Cindy Grimm, Ruth West, Max Parola, and Meghan Kajihara, "Analyzing Experts' Eye Gaze Movements While Doing 3D Image Segmentation", *Grace Hopper Celebration of Women in Computing (GHC) poster*, Oct. 2016, Houston, Texas.
- **Anahita Sanandaji**, Cindy Grimm, and Ruth West, "How Experts' Mental Model Affects 3D Image Segmentation", *2016 ACM Symposium on Applied Perception (SAP 2016) poster*, July 2016.
  Link to paper: `http://dl.acm.org/citation.cfm?id=2948718`
- **Anahita Sanandaji**, Cindy Grimm, Ruth West, Max Parola, and Meghan Kajihara, "Analyzing Experts' Low-level Perception and Higher-level Cognitive Tasks While Doing 3D Image Segmentation", *Presented at Oregon State University Engineering Research Expo.*, March 2016, Portland, OR.
  Link to presentation video: `https://www.youtube.com/watch?v=u_V85f6edp8`
- **Anahita Sanandaji**, Jeremy Deutsch, Max Parola, Meghan Kajihara, Anne Carlew, Ruth West, and Cindy Grimm, "Where do Experts Look while doing 3D Image Segmentation", *Presented at Oregon State University Engineering Research Expo.*, March 2015, Portland, OR.

GRADUATE COURSEWORK

Information Visualization, Machine Learning, Algorithms and Data Structures, Intelligent Agents and Decision Making, Programming Languages, Open Source Development, Advanced Software Engineering, Qualitative and Quantitative Research Methods, Research Methods in HCI and Usability, Theory of Computation, Scientific Writing and Presentation.

SKILLS

Data Analytics, Visualization, Data Mining, and Analysis: Tableau, Apache Superset, Orange, D3.js, MS SQL, PostgreSQL, MySQL, and MS Access
Programming Languages and Statistical Analysis: Python, R C++, Java, Matlab, and C#
Web Programming: JavaScript, HTML, and CSS
HCI and User Experience: UX Design, User Studies, Prototyping, Paper mock-up, Interviews, and Surveys
Other: Unity, Git (version control), Windows Server and Linux Operating Systems, MS Active Directory and related Services, MS Exchange Server, MS ISA Server, MS SharePoint Services, Microsoft Visio, and Microsoft Project.

HONORS AND AWARDS

- Research Grant: National Science Foundation, Graduate Research Assistant and Developer, CGV: Medium: Collaborative Research: Developing conceptual models for navigation, marking, and inspection in the context of 3D image segmentation, IIS 1302142, 2013-2017, $286,300.
- Google travel grant recipient to attend WE17 conference (world's largest conference for women in engineering), Austin, TX, Oct 2017.
- Tapia scholarship recipient to attend Tapia 2017 Conference, Atlanta, GA.
- OCWiC scholarship recipient to attend Ohio Celebration of Women in Computing 2017, Winter 2017.
- CRA-W Early Career Graduate Student Mentoring Workshop scholarship recipient. March 2017, Seattle, WA
- Anita Borg scholarship recipient to attend Grace Hopper Celebration of Women in Computing (GHC), 2016, Houston, Texas.
- Selected for MIME Graduate Summer Tuition Scholarship, Oregon State University, Summer 2016.
- Vice Provost's Award for Excellence in *Innovation– Online–teaching–Credit, EECS degree in computer science online*, Oregon state University, Spring 2014.
- Selected for a University Graduate Laurels Scholarship, Oregon state University, Fall 2012.

CERTIFICATES

Microsoft Certified Systems Engineer (MCSE), September 2008.
Microsoft Certified Systems Administrator (MCSA), September 2008.