Mahsan Nourani

Human-Computer Interaction · Human-centered AI/XAI · Visual Analytics

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Education

University of Florida — *Gainesville, Florida*

Ph.D. Student in Computer Science — *Aug 2018 - present*

- GPA: 3.80 / 4.0
- Advised by Dr. Eric D. Ragan
- Expected Graduation Date: May 2022

Texas A&M University — *College Station, Texas*

Ph.D. Student in Computer Science (Transferred) — *Aug 2017 - Aug 2018*

- Advised by Dr. Eric D. Ragan

University of Tehran — *Tehran, Iran*

B.E. in Information Technology (Computer Engineering) — *Sep 2012 - June 2017*

- GPA in Major: 3.70 / 4.0
- Thesis: "Teaching Turn Taking Skill to Autistic Children by means of Video Games"
- Advised by Dr. Hadi Moradi

Publications

Peer-Reviewed Journal Papers

- Fabian Bolte, **Mahsan Nourani**, Eric D Ragan, and Stefan Bruckner. Splitstreams: A visual metaphor for evolving hierarchies. In *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2020

Peer-Reviewed Conference Papers

- **Mahsan Nourani**, Joanie T. King, and Eric D. Ragan. The role of domain expertise in user trust and the impact of first impressions with intelligent systems. In *Eighth AAAI Conference on Human Computation and Crowdsourcing (HCOMP)*, 2020
- Donald R. Honeycutt, **Mahsan Nourani**, and Eric D. Ragan. Soliciting human-in-the-loop user feedback for interactive machine learning reduces user trust and impressions of model accuracy. In *Eighth AAAI Conference on Human Computation and Crowdsourcing (HCOMP)*, 2020
- Qing Li, Sharon Lynn Chu, Nanjie Rao, and **Mahsan Nourani**. Understanding the effects of explanation types and user motivations on movie recommender system use. In *Eighth AAAI Conference on Human Computation and Crowdsourcing (HCOMP)*, 2020
- **Mahsan Nourani**, Samia Kabir, Sina Mohseni, and Eric D Ragan. The effects of meaningful and meaningless explanations on trust and perceived system accuracy in intelligent systems. In *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing*, volume 7, pages 97–105, 2019

Workshop Papers, Extended Abstracts, and Presentations

- **Mahsan Nourani**, Donald R Honeycutt, Jeremy E Block, Chiradeep Roy, Tahrima Rahman, Eric D Ragan, and Vibhav Gogate. Investigating the importance of first impressions and explainable ai with interactive video analysis. In *CHI '20 Extended Abstracts, Honolulu, HI, USA.*, 2020
- Chiradeep Roy, Mahesh Shanbhag, **Mahsan Nourani**, Tahrima Rahman, Samia Kabir, Vibhav Gogate, Nicholas Ruozzi, and Eric D Ragan. Explainable activity recognition in videos. In *IUI Workshops*, 2019
- Chiradeep Roy, Mahsan Nourani, Mahesh Shanbagh, Samia Kabir, Tahrima Rahman, Eric D Ragan, Nicholas Ruozzi, and Vibhav Gogate. Explainable activity recognition in videos using dynamic cutset networks. *3rd Workshop of Tractable Probabilistic Modeling (TPM 2019)*, 2019

Technical Skills

Programming Languages	C/C++, Python, JAVA, C#, Ruby
Web and Visualization	HTML/CSS, JavaScript, D3.js, Bootstrap, React.js, Material-UI
Machine Learning	Scikit-Learn, Matplotlib, OpenCV, PyTorch, Jupyter notebook, Weka, NVIDIA DIGITS
Human-centered Research	User-centered design, Controlled user study, Empirical methods & statistical analysis, Usability testing
Data Analysis	R, MaxQDA, Miro
Technology	Ubuntu, Linux/Unix, Shell Script, MacOS, Windows
Database	Microsoft SQL Server, My SQL, PostgreSQL
Miscellaneous	Adobe Illustrator, Adobe Photoshop, LaTeX, Amazon MTurk

Research Experience and Notable Projects

Graduate-level Research and Projects

eXplainable Artificial Intelligence (XAI)

Gainesville, Florida

Aug. 2017 - Present (DARPA XAI Grant)

- (WIP) Created a visualization tool for the **global visualization** and debugging of a DNN to study the effectiveness of explanation scope.
- Created web-based interactive systems for an **explainable** video activity recognition system, and utilized the system to conduct controlled experiments and A/B testing to study user behaviours, such as perception of model's accuracy and **mental model**.
- Designed and conducted user studies to determine the effects of explanations in an image classifier on **user trust**.
- Studied the correlation between explanations, user **cognitive biases**, user trust, and deception in explainable AI/ML systems.
- Technologies: HTML/CSS, JavaScript, Bootstrap, D3.js, React.js, Material-UI, and MySQL

Trust and Expertise in Automation

Gainesville, Florida

Jan. 2019 - Present

- Studying trust in AI/ML systems, mainly focusing on explainable and **interpretable models** and how they can affect trust.
- Studying **Domain expertise** and knowledge and how they affect user behaviour, such as trust, user mental models, and cognitive biases.
- Designed and conducted user studies to determine the effects of domain expertise in an image classifier scenario on **user trust**.

Analytical Provenance Visualization & Segmentation

Gainesville, Florida

May 2019 - Present

- Conducted and designed a controlled behavioral user study to understand how humans **summarize analytical provenance** data.
- Mentored an undergraduate research intern in NSF REU program for prototyping a visual interface for this project.

SplitStreams for Visualizing Hierarchies over Time

Gainesville, Florida

Feb. 2019 - Feb. 2020

- Conducted **user studies** through Amazon Mechanical Turk to evaluate the method usefulness and user performance in comparison to current techniques.

FashioNXT Social Network

College Station, Texas

Feb. 2018 - May. 2018

- Designed and implemented the interface for a fashion-based social network using bootstrap and JavaScript in a ruby on rails application. The project was done for a real-world customer as part of the Software Engineering Course.

Undergraduate-level Research and Projects

Teaching Turn Taking Skill to Autistic Children

Tehran,Iran

Oct. 2016 - Aug. 2017

- B.E. Senior project in association with Advanced Robotics and Intelligent Systems (ARIS) Lab under supervision of Professor Hadi Moradi.
- Developed a video game designed specifically for children with Autism disorder to help them learn to wait for their turns in a social situation. The game was designed based on a Robot Parrot designed in the ARIS Lab, targeting users who did not have access to the robot.

Stock Market Website

Tehran, Iran

Feb. 2016 - Jun 2016

- Designed and developed a multi-user web-based stock market with user profiles and functionalities such as purchasing/selling stocks.
- Technologies: Java, PostgreSQL, JavaScript, Angular.js, HTML/CSS, and Bootstrap.

Accident Report System

Tehran, Iran

Jun. 2015 - Sep. 2015

- Designed and developed a windows application for a company's HR to keep record of employees' insurance and accidents within the company.
- Technologies: C#, WPF Framework, and MS SQL Server.

Perceptual Video Coding with the Focus on the distance and size of the distortion

Tehran, Iran

Aug. 2014 - Mar. 2015

- The purpose of the experiment was to find perceptual patterns for higher compression rates. As an undergraduate researcher, I developed a tool to generate videos with mutant distortion using WPF, C#.

Teaching Experience

Introduction to Computer Systems and Programming — *University of Tehran*

Teaching Assistant — *Fall 2015*

- Lead project supervisor and designer.
- Lab coordinator.
- Mentored 200+ undergraduate first-year students and supervised 10 teaching assistants.

Advanced Programming — *University of Tehran*

Teaching Assistant — *Fall 2014 - Spring 2015*

- Homework designer and lecturer of extra-credit classes

Data Structures and Algorithm — *University of Tehran*

Teaching Assistant — *Spring 2015 - Fall 2015*

- Homework designer and in charge of extra-credit assignments and activities.

Probability and Statistics — *University of Tehran*

Grader — *Fall 2015*

- Homework Grader.

Honors & Awards

2020	**Awardee**, Outstanding Achievement Award, College of Engineering.	*Gainesville, Florida*
2016	**Winner**, 4th Iran Game Developers Cup (team participation).	*Kashan, Iran*
2012	**Ranked 542^{th}**, Nationwide University Entrance Exam in Mathematics and Physics-(Top 0.1%).	*Tehran, Iran*
2012	**Ranked 242^{th}**, Nationwide University Entrance Exam in English and Foreign Languages-(Top 0.4%).	*Tehran, Iran*
2011	**Semi-finalist**, National Olympiads of Literature.	*Tehran, Iran*
2009	**Winner**, Best Junior Literary and Cultural Researcher in Tehran, Ministry of Education.	*Tehran, Iran*

Presentations

IEEE Visualization and Visual Analytics Conference — *Virtual, Earth*

Conference presentation for accepted paper — *Oct. 2020*

- Co-presented journal paper, " *Splitstreams: A Visual Metaphor for Evolving Hierarchies*"

The Eighth AAAI Conference on Human Computation and Crowdsourcing (HCOMP) — *Virtual, Earth*

Conference presentation for accepted paper — *Oct. 2020*

- Presented full paper, "*The Role of Domain Expertise in User Trust and the Impact of First Impressions with Intelligent Systems*"

University of Florida affiliated Virtual CHI — *Gainesville, FLorida*

Conference presentation for accepted paper — *May. 2020*

- Presented the CHI 2020 short abstract, "*Investigating the Importance of First Impressions and Explainable AI with Interactive Video Analysis*"

The UFII Student Data Analysis Seminar (SDAS) — *Gainesville, FLorida*

Research presentation — *Oct. 2019*

- Presented full paper, "*The Effects of Explanation Meaningfulness on Trust and Perception of Accuracy*"
- Presented follow-up work and current research focus and projects and the results of these studies.

The Seventh AAAI Conference on Human Computation and Crowdsourcing (HCOMP) — *Skamania Lodge, Washington*

Conference presentation for accepted paper — *Oct. 2019*

- Presented the paper accepted in HCOMP'19, "*The Effects of Explanation Meaningfulness on Trust and Perception of Accuracy*"

Service Activities

2020	**Organizer and chair**, First IEEE Workshop on TRust and EXpertise in Visual Analytics (**TREX**).
2020	**Organizer and chair**, University of Florida affiliated Virtual CHI Presentation Day.
2020	**Program Committee**, IEEE VIS TREX Workshop.
2020	**Reviewer**, ACM CHI, VISxAI and TREX Workshops (IEEE VIS).

Volunteer Experiences

Nov. 2019	**Event Coordinator**, CodeIt Day Event.	*Belle Glade, Florida*
May 2019	**Mentor**, NSF IMHCI-REU Program.	*Gainesville, Florida*
2016	**Journalist & Interviewer**, ACM Student Chapter F1 Magazine.	*Tehran, Iran*
[2014-17]	**Student Body & Member**, Game Club Student Chapter.	*Tehran, Iran*