

# 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, Tahrira 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**, Tahrira Rahman, Samia Kabir, Vibhav Gogate, Nicholas Ruoizzi, and Eric D Ragan. Explainable activity recognition in videos. In *IUI Workshops*, 2019
- Chiradeep Roy, Mahsan Nourani, Mahesh Shanbagh, Samia Kabir, Tahrira Rahman, Eric D Ragan, Nicholas Ruoizzi, and Vibhav Gogate. Explainable activity recognition in videos using dynamic cutset networks. *3rd Workshop of Tractable Probabilistic Modeling (TPM 2019)*, 2019

## Technical Skills

<b>Programming Languages</b>	C/C++, Python, JAVA, C#, Ruby
<b>Web and Visualization</b>	HTML/CSS, JavaScript, D3.js, Bootstrap, React.js, Material-UI
<b>Machine Learning</b>	Scikit-Learn, Matplotlib, OpenCV, PyTorch, Jupyter notebook, Weka, NVIDIA DIGITS
<b>Human-centered Research</b>	User-centered design, Controlled user study, Empirical methods & statistical analysis, Usability testing
<b>Data Analysis</b>	R, MaxQDA, Miro
<b>Technology</b>	Ubuntu, Linux/Unix, Shell Script
<b>Database</b>	Microsoft SQL Server, My SQL, PostgreSQL
<b>Miscellaneous</b>	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 visualization tool for **global visualization** of a DNN for debugging purposes to study effectiveness of explanations' 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**.
- Studying 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.

#### FashionNXT 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 stock market website, using Java as the back-end and JavaScript, Angular.js, HTML/CSS, and Bootstrap as the front-end.

#### 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	<b>Awardee</b> , Outstanding Achievement Award, College of Engineering.	Gainesville, Florida
2016	<b>Winner</b> , 4th Iran Game Developers Cup (team participation).	Kashan, Iran
2012	<b>Ranked 542<sup>th</sup></b> , Nationwide University Entrance Exam in Mathematics and Physics-(Top 0.1%)	Tehran, Iran
2012	<b>Ranked 242<sup>th</sup></b> , Nationwide University Entrance Exam in English and Foreign Languages-(Top 0.4%)	Tehran, Iran
2011	<b>Semi-finalist</b> , National Olympiads of Literature	Tehran, Iran
2009	<b>Winner</b> , 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	<b>Organizer and chair</b> , First IEEE Workshop on TRust and EXpertise in Visual Analytics (TREX)
2020	<b>Organizer and chair</b> , University of Florida affiliated Virtual CHI Presentation Day
2020	<b>Program Committee</b> , IEEE VIS TREX Workshop
2020	<b>Reviewer</b> , ACM CHI, VISxAI and TREX Workshops (IEEE VIS)

## Volunteer Experiences

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