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Seyed Hossein (Soheil) Alavi

CONTACT INFORMATION

Department of Computer Science
University of British Columbia

Email: sh.alavi77@gmail.com
https://www.cs.ubc.ca/~salavis/

EDUCATION

Ph.D. in Computer Science, University of British Columbia (2021-Present)

M.Sc. in Computer Science, University of Southern California (2020)

B.Sc. in Computer Engineering, Sharif University of Technology (2016)

B.Sc. in Aerospace Engineering, Sharif University of Technology (2016)

HONORS AND AWARDS

Annenberg Fellowship, University of Southern California (2016)

Gifted Student Award, Entrance exam waiver for graduate program, Sharif University of Technology (2016)

Member of the Exceptional Talents Organization, Sharif University of Technology (2013-2016)

Awarded the opportunity to be the first student at SUT who double majored in Computer Engineering and Aerospace Engineering, Exceptional Talents Organization, SUT (2013)

Ranked top 0.01% in Mathematics and Physics participants, B.Sc. Entrance Exam (2011)

Admitted to study "Doctor of Medical Professionals", National university entrance exam, Iran (2011)

Member of The National Organization for Development of Exceptional Talents (2007-2010)

RESEARCH INTERESTS

- Conversational AI
- Commonsense Reasoning
- Machine Translation and Language Modeling
- Question Answering
- Recommendation Systems
- Applied NLP and Deep Learning

EXPERIENCES

NLP research Group, RA, UBC, Supervisors:*Raymond Ng* and *Vered Shwartz* (2021-Present)

Apple Maps Search, Machine Learning / NLP Research Intern, Apple, Cupertino, USA (Summer 2020)

Natural Language Dialogue Group, RA, ICT, USC, Advisor:*David Traum* (2018-2021)

- **Open-domain chat bot**, Develop open-domain end to end chat bots by fine-tuning **dialoGPT** on the **Alexa topical chat dataset**
- **Generative Neural Network**, design and implement a generative deep learning model for the task of choosing the next best response for a given dialogue, exploiting from **Transformers** and **BERT**
- **Dual-Encoder**, build a sequence to sequence neural network dialogue manager, based on the Dual-Encoder model's architecture, for the New Dimensions in Testimony (NDT) system
- **Virtual Human/Dialogue System**, conducting a human in the loop experiment for Mr. Clue, a virtual agent that can play Word-Guessing Games
- **Android application**, design a multilingual spoken dialogue system that elicits monologues from speakers of endangered languages to generate a general use corpus of audio responses

Intelligence and Knowledge Discovery group, RA, USC, Advisor:*Xiang Ren* (Spring-Summer 2018)

- **Sequence to Sequence model for Knowledge Extraction**, Implement a variation of TACRED position aware model from *"Position-aware Attention and Supervised Data Improve Slot Filling"*

Machine INtelligence and Data Science group, RA, ISI, USC, Advisor:*Greg Ver Steeg* (Fall 2017)

Software Quality Lab, Research Assistant, USC, Advisor: *William G.J. Halfond* (2016-2017)

- **"Annoying Advertisement" classifier**, build an advertisement classifier using **Support Vector Machine, K-Nearest Neighbours, and Random Forests** algorithms
- Design an energy consumption **predictor** of software functions using **Linear Regression** and **programing analysis**
- **Control flow Analysis and Data Flow Analysis** of software programs using Soot library

Smart Lab, Research Assistant, Sharif University of Technology, Advisor: *Maziar Goudarzi* (2015-2016)

- **Android application**, design and develop of "Limit" application, an android app synchronized with a supporting server allowing parents to track their children, *SUT Smart Lab*

Professional Activities

Conference peer reviewer: Association for the Advancement of Artificial Intelligence (AAAI-21)

Co-organizer of The 9th Dialog System Technology Challenge (DSTC9)

Member of the New York Academy of Science (Fall 2019-2021)

Conference peer reviewer: Southern California Natural Language Processing Symposium (SoCalNLP 2019)

Conference peer reviewer: International Conference on Software Engineering (ICSE 2017)

Select Publications

[1] "Which Model Should We Use for a Real-World Conversational Dialogue System? a Cross-Language Relevance Model or a Deep Neural Net?", **Seyed Hossein Alavi**, Anton Leuski, David Traum, *LREC* (2020).

[2] "An Interactive Image Editing System using an Uncertainty-based Confirmation Strategy", Seitaro Shinagawa, Koichiro Yoshino, **Seyed Hossein Alavi**, Kallirroi Georgila, David Traum, Sakriani Sakti, Satoshi Nakamura. *IEEE Access* (2020).

[3] "Human swarm interaction using plays, audibles, and a virtual spokesperson", Patricia Chaffey, Ron Artstein, Kallirroi Georgila, Kimberly A Pollardy, Setareh Nasihati Gilani, **Seyed Hossein Alavi**, David M Krum, David Nelson, Kevin Huynh, Alesia Gainer, Rhys Yahata, David Traum *SPIE* (2020).

[4] "Overview of the Ninth Dialog System Technology Challenge", *DSTC9* (2020).

[5] "Can We Use a Spoken Dialogue System to Document Endangered Languages?", **Seyed Hossein Alavi**, Jacqueline Brixey, David Traum, *DiGo* (2019).

[6] "Comparing Cross Language Relevance vs Deep Neural Network approaches to corpus-based End-to-end dialogue systems", **Seyed Hossein Alavi**, Anton Leuski, David Traum, *SemDial* (2019).

[7] "Developing a Virtual Reality Wildfire Simulation to Analyze Human Communication and Interaction with a Robotic Swarm During Emergencies", Patricia Chaffey, Ron Artstein, Kallirroi Georgila, Kimberly A Pollardy, Setareh Nasihati Gilani, **Seyed Hossein Alavi**, David M Krum, David Nelson, Kevin Huynh, Alesia Gainer, Rhys Yahata, David Traum *HLTCEM* (2019).

Select Graduate Courses

- **Deep Learning (Special Topic)**, *USC*, Grade: A
- **AI for Multi-Agent Systems (Special Topic)**,*USC*, Grade: A
- **Applied Natural Language Processing**,*USC*, Grade: A
- **Dialogue Systems**,*USC*, Grade: A

Teaching Experiences

- **Analysis of Algorithms**, Head TA, Instructor: Professor Shamsian *USC* (Fall 2020)
- **Introduction to Algorithms and the Theory of Computing (CSCI 270)**, Head TA, Instructor: Professor Shamsian, *USC* (Spring 2020)
- **Analysis of Algorithms**, Head TA, Instructor: Professor Shamsian *USC* (Fall 2019)
- **Analysis of Algorithms**, Head TA, Instructor: Professor Shamsian *USC* (Summer 2019)
- **Analysis of Algorithms**, Head TA, Instructor: Professor Shamsian *USC* (Summer 2018)
- **Analysis of Algorithms**, Teaching Assistant, Instructor: Professor Shamsian *USC* (Spring 2018)
- **Analysis of Algorithms**, Teaching Assistant, Instructor: Professor Shamsian *USC* (Fall 2017)
- **Numerical Methods**, Teaching Assistant, SUT, Instructor: Professor Javadi (Spring 2015)
- **Numerical Methods**, Teaching Assistant, SUT, Instructor: Professor Javadi (Fall 2014)
- **Computer Structure and Language**, Teaching Assistant, SUT, Instructor: Prof.Asadi (Fall 2014)
- **Technical and Scientific Presentation**, TA, SUT, Instructor: Professor Abtahi (Fall 2014)
- **Digital Design**, Teaching Assistant, SUT, Instructor: Professor Bayat Samadi (Spring 2014)

Technical Experties

Programming Languages: Python, Java, Scala, C++, MATLAB, PHP, SQL

Libraries and frameworks: Pytorch, TensorFlow, Keras, Scikit, Soot, JavaFX

Movbile/Web: Android, Django, NodeJs, HTML, CSS, JS

Distributed: Spark, Hadoop

University Services

Vice President of the USC Iranian Graduate Student Association (IGSA) (2017-2019)

Member of the Computer Science PhD committee department (2017-2019)

Extra-curricular Activities

Member of the BreakOn2 performance dance team (2019-2020)

Member of the USC ballroom dance team (2020)