

Arvin Hekmati

CS Department
USC
3710 McClintock Ave
Los Angeles, CA, USA 90089

hekmati@usc.edu
arvinhekmati.net
+1 (310) 779-3513

EDUCATION

Sep. 2019 - Present	PhD in COMPUTER SCIENCE, University of Southern California , CA, USA Advisors: Prof. Bhaskar Krishnamachari , Prof. Cyrus Shahabi (First semester in ECE department) GPA (TO DATE): 4.00/4.00
Sep. 2017 - Jun. 2019	MASc in ELECTRICAL AND COMPUTER ENGINEERING, McMaster University , Ontario, Canada GPA: A+ (11.50/12.00) Advisors: Prof. Terry Todd , Prof. George Karakostas , Prof. Dongmei Zhao
Sep. 2013 - Jul. 2017	BSc in ELECTRICAL AND COMPUTER ENGINEERING, University of Tehran , Tehran, Iran Major: Communications GPA: 16.88/20.00 (3.50/4.00) EXCEPT TERM 7 GPA: 17.63/20.00 (3.70/4.00) Advisor : Prof. Vahid Shah-Mansouri
Sep. 2009 - Jun. 2013	High School Diploma in Mathematics and Physics, Allameh Helli 1 , Tehran, Iran NATIONAL ORGANIZATION FOR DEVELOPMENT OF EXCEPTIONAL TALENTS (NODET) GPA: 19.95/20.00 (4.00/4.00)

RESEARCH INTERESTS

- Computer Networks, Cloud/Edge Computing
- Crowdsourcing, Mobile Social Networks
- Internet of Things
- Machine/Deep Learning, Data Science
- Reinforcement Learning
- Optimization

PUBLICATIONS

- **A. Hekmati**, M. Luhar, B. Krishnamachari and M. Mataric, "Simulating COVID-19 Classroom Transmission OnA University Campus", *Submitted to PNAS Journal*
- **A. Hekmati**, B. Krishnamachari and M. Mataric, "Scheduling Courses to Minimize Student WaitTimes For University Campus Buildings DuringEpidemics", *Submitted to IEEE Workshop on Big Data Analytics for COVID-19 (BDA COVID-2021)*
- **A. Hekmati**, B. Krishnamachari, E. Grippo, "Dataset: Large-scale Urban IoT Activity Data for DDoS Attack Emulation", *Submitted to ACM 4th Workshop on Data: Acquisition to Analysis (2021)*
- **A. Hekmati**, M. Luhar, B. Krishnamachari, Maja Mataric, "Simulation Based Analysis of COVID-19 Spread Through Classroom Transmission on a University Campus", accepted for publication in *IEEE ICC Workshop on Communication, IoT, and AI Technologies to Counter COVID-19 (COVI-COM)*
- **A. Hekmati**, G. Ramachandran, B. Krishnamachari, "CONTAIN: Privacy-oriented Contact Tracing Protocols for Epidemics", accepted for publication in *6th IFIP/IEEE International Workshop on Analytics for Network and Service Management (AnNet)*
- M. Martinez, **A. Hekmati**, B. Krishnamachari, S. Yun, "Mobile Encounter-based Social Sybil Control," Accepted for publication in 2nd International Workshop on Blockchain Applications and Theory (BAT 2020), Paris, France, April 2020 *Elsevier Computer Communications Journal*
- P. Teymoori, **A. Hekmati**, T. Todd, D. Zhao, G. Karakostas, "Optimal Multi-Part Mobile Computation Offloading With Hard Deadline Constraints", Accepted for publications in *IEEE Transactions on Green Communications and Networking*
- **A. Hekmati**, P. Teymoori, T. Todd, D. Zhao, G. Karakostas, "Optimal Multi-Part Mobile Computation Offloading With Hard Deadline Constraints", Accepted for publications in *Elsevier Computer Communications Journal*
- **A. Hekmati**, P. Teymoori, T. Todd, D. Zhao, G. Karakostas, "Optimal Mobile Computation Offloading With Hard Deadline Constraints", Accepted for publications in *IEEE Transactions on Mobile Computing*

- **A. Hekmati**, P. Teymoori, T. Todd, D. Zhao, G. Karakostas, "Optimal Multi-Decision Mobile Computation Offloading With Hard Task Deadlines", Accepted for publications in *IEEE Symposium on Computers and Communications (ISCC)*

CERTIFICATES

- Machine Learning: Stanford University on Coursera. [[Certificate](#)]
- Neural Networks and Deep Learning: deeplearning.ai on Coursera. [[Certificate](#)]
- Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization - deeplearning.ai on Coursera. [[Certificate](#)]
- Structuring Machine Learning Projects: deeplearning.ai on Coursera. [[Certificate](#)]
- Convolutional Neural Networks: deeplearning.ai on Coursera. [[Certificate](#)]
- Sequence Models: deeplearning.ai on Coursera. [[Certificate](#)]

HONORS AND AWARDS

- 2019 University of Southern California PhD Scholarship Award
- 2017-2019 McMaster University MASC Scholarship Award
- 2017 University of Alberta MASC Scholarship Award
- 2017 University of Tehran MASC Fellowship Award as an exceptional talented student
- 2013 Ranked 161 among more than 250000 participants (i.e. top 0.07%) in Iranian University Entrance Exam

RESEARCH EXPERIENCE

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|--------------------------|--|
| Sep. 2019-
Present | Research Assistant at ANRG and InfoLab, USC, CA, USA
Edge Computing - Machine Learning - Block Chain |
| Sep. 2017-
Aug. 2019 | Research Assistant at Wireless Networking Lab, McMaster University, Ontario, Canada
Mobile Computation Offloading - Machine Learning: Developed optimal computation offloading algorithm for a general Markovian communication channel. I have also worked on efficient offloading by using neural networks, Hidden Markov Models, reinforcement learning and other machine learning techniques. |
| Oct. 2016-
Aug. 2017 | Research Assistant at Multimedia Wireless Networks Lab, University of Tehran, Tehran, Iran
Software Defined Networks: Developed multiple OpenDaylight controllers in software defined networks in order to control the TCP/UDP generated traffics in the network created by Mininet. |
| Jun. 2016 -
Sep. 2016 | Software Engineer and Researcher, Farineh Technology Company, Tehran, Iran
Worked on iotivity standard for the Internet of Things and sensor information processing in smart home devices. |

SELECTED COURSE PROJECTS

- **Geo-spatial Information Management:** Developed various KNN and Range Queries algorithms
- **Energy Efficient Offloading - Game Theory Approach:** Implemented the optimization problem in Matlab via CVX-Mosek
- **Dijkstra/Steiner Trees:** Implemented the simulation in Matlab for USA/Canada backbone network for broadcasting data
- **Optical Character Recognition For Persian Alphabets:** Developed neural network in Matlab to recognize Persian alphabets
- **Happy Face Detection:** Implemented residual networks in Keras in order to detect the happy faces.
- **Car Detection in Autonomous Driving:** Developed YOLO model in Keras.
- **Emojify:** Developed word embedding and LSTM units in Keras for adding emojis to the sentences according to their meanings.
- **Trigger Word Detection:** Developed 1-D convolutional layers, GRU layers, and dense layers in Keras.
- **Translate Dates:** Developed Neural Machine Translation (NMT) model by using attention model.
- **LinkedIn:** Design and implementation of an object oriented model of a social network like LinkedIn in C++
- **Secure File System:** Design and Implementation of a Secure File System in C
- **TCP Reno Congestion Control Method:** Implemented the simulation in NS-2
- **Ad-hoc on Demand Distance Vector Routing Protocol:** Implemented the simulation in NS-2

TECHNICAL SKILLS

- **Programming:** Matlab, C, C++, Python, Java
- **Operating Systems:** Linux, Windows
- **Computer Networks:** Mininet, OpenDayLight, NS-2
- **Engineering Softwares:** Pspice, Hspice, Advanced Design System, Multisim, Labview, Proteus, Codevision
- **Deep Learning Frameworks:** TensorFlow, Keras
- **Document Preparation:** \LaTeX , Microsoft Office
- **HDL:** Verilog, Modelsim, Quartus
- **Microcontrollers:** AVR, ARM

PROFESSIONAL ACTIVITIES

- Served as a reviewer for Information Processing and Management journal
- Served as a reviewer for IEEE Global Communications Conference (GLOBCOM)
- Served as a reviewer for International Wireless Communications and Mobile Computing Conference (IWCMC)
- Helped as a volunteer student for Vehicular Technology Conference (VTC), Fall 2017

SELECTED TEACHING EXPERIENCE

- SPRING 2020 **Introduction to Programming**, *Instructor : Prof. Andrew Goodney*
FALL 2019 **Introduction to Programming**, *Instructor : Prof. Andrew Goodney*
SPRING 2019 **Advanced Internet Communication**, *Instructor : Prof. Terry Todd*
FALL 2018 **Computer Communication Networks**, *Instructor : Prof. Terry Todd*
SPRING 2018 **Advanced Internet Communication**, *Instructor : Prof. Terry Todd*
FALL 2017 **Computer Communication Networks** , *Instructor : Prof. Terry Todd*
SPRING 2017 **Computer Networks**, *Instructor : Prof. Vahid Shah-Mansouri*
FALL 2016 **Engineering Probability and Statistics**, *Instructor : Prof. Amir Masoud Rabiei*
FALL 2014 **Introduction to Computing Systems & Programming**, *Instructor : Prof. Hadi Moradi*

LANGUAGE SKILLS

- PERSIAN: **Native**
ENGLISH: **Fluent**
- TOEFL iBT(May. 2018): 110/120 (R: 28/30, L: 29/30, S: 24/30, W: 29/30)
- GRE (Nov. 2018) : 319/340 (V: 151/170, Q: 168/170, AW: 4.5/6.0)

SELECTED COURSES

- **Algorithm Courses:** Analysis of Algorithms, Advanced Analysis of Algorithms
- **Database Courses:** Geo-spatial Information Management
- **Networking Courses:** Cloud Communication, Wireless Communication Networks, Computer Networks, Digital Communication Laboratory
- **Machine Learning Courses:** Advanced Topics in Machine Learning, Neural Networks and Learning Machines, Machine Learning, Deep Learning
- **Mathematics Courses:** Engineering Optimization, Engineering Probability and Statistics, Engineering Mathematics, Calculus I, II
- **Programming Courses:** Advanced Programming, The Introduction to Computing Systems & Programming