

# BEHROOZ OMIDVAR-TEHRANI

## Curriculum Vitae

[behrooz@omidvar.info](mailto:behrooz@omidvar.info)

## Research Interests

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In general, my research is about **interactive data systems**. My research covers the following topics: **user data analytics**, **geospatial data analytics**, **health-care data analytics**, **visual analytics**, **interactive recommendation**, **group recommendation**, **multi-objective optimization**, **reinforcement learning**, and **explainability**.

## Education

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- B.S., Information Technology, *Azad University of Mashhad*, 2010
- M.S., Artificial Intelligence, *University of Grenoble Alpes*, 2012
- Ph.D. (with distinctions), Computer Sciences and Applied Mathematics, *University of Grenoble Alpes*, 2015

## Employment (post Ph.D.)

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**Research Scientist** at *Naver Labs Europe*. In Meylan, France. June 2019 – Present

Responsibilities: Deep reinforcement learning for user data exploration, interactive recommendation for exploring points of interest (POIs) in geospatial data, explainability approaches in recommendation systems, region-of-interest interactive exploration to capture weak feedback signals and improve the exploration experience, intent prediction for POI recommendation to gain a better understanding of user needs in cold-start settings

**Research Associate** at *University of Grenoble Alps*. In Grenoble, France. June 2017 – June 2019

Responsibilities: Group recommendation, interactive travel package generation for groups, interactive visual framework for formation and exploration of patient cohorts, interactive representation and exploration of patient cohorts, full materialization of user group analysis pipeline from mining to exploration to visualization, multi-objective optimization for group discovery

**Research Associate** at *The Ohio State University*. In Columbus, Ohio, USA. February 2016 – June 2017

Responsibilities: Interactive visual framework for aviation data analysis and deviation analysis, modeling and characterization of driving behavior and driving context, interactive visual framework for driving pattern annotation

## Publications

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### Peer-reviewed Journal Articles

1. Behrooz Omidvar-Tehrani, Sihem Amer-Yahia, and Laks V.S. Lakshmanan. “Cohort Analytics: Efficiency and Applicability”. In *The International Journal on Very Large Data Bases (VLDBJ)*, 2020 [\[link to the paper\]](#)  
Topic: **health-care data analytics**
2. Fabian Colque Zegarra, Juan C. Carbajal, Behrooz Omidvar-Tehrani, Viviane Moreira, Sihem Amer-Yahia, Joao L. D. Comba. “Visual Exploration of Rating Datasets and User Groups”. In *The International Journal of Future Generation Computer Systems (FGCS)*, December 2019 [\[link to the paper\]](#)  
Topics: **user data analytics**, **visual analytics**
3. Behrooz Omidvar-Tehrani and Sihem Amer-Yahia. “User Group Analytics: Survey and Research Opportunities”. In *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2019 [\[link to the paper\]](#)  
Topic: **user data analytics**
4. Olivier Palombi, Fabrice Jouanot, Nafissetou Nziengam, Behrooz Omidvar-Tehrani, Marie-Christine Rousset, and Adam Sanchez. “OntoSIDES: Ontology-based student progress monitoring on the national evaluation system of French Medical Schools”. In *Journal of Artificial Intelligence in Medicine*, 2019 [\[link to the paper\]](#)  
Topic: **health-care data analytics**
5. Behrooz Omidvar-Tehrani, Sihem Amer-Yahia, and Ria Mae Borromeo. “User Group Analytics: Hypothesis Generation and Exploratory Analysis of User Data”. In *The International Journal on Very Large Data Bases (VLDBJ)*, 2018 [\[link to the paper\]](#)  
Topic: **user data analytics**
6. Trong Dinh Thac Do, Alexandre Termier, Anne Laurent, Benjamin Negrevergne, Behrooz Omidvar-Tehrani, and Sihem Amer-Yahia. “PGLCM: Efficient Parallel Mining of Closed Frequent Gradual Itemsets”. In *Journal of Knowledge and Information Systems (KAIS)*, 2014 [\[link to the paper\]](#)  
Topic: **data mining**

### Peer-reviewed Conference Papers

7. Behrooz Omidvar-Tehrani, Sruthi Viswanathan, and Jean-Michel Renders. “Interactive and Explainable Point-of-Interest Recommendation using Look-alike Groups”. In *The*

*International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL)* 2020 [\[link to the paper\]](#) [\[link to the ArXiv\]](#) [\[link to the video\]](#)  
 Topics: **geospatial data analytics**, **interactive recommendation**, **multi-objective optimization**, **explainability**

8. Mariia Seleznova, Behrooz Omidvar-Tehrani, Sihem Amer-Yahia, and Eric Simon. “Guided Exploration of User Groups”. In *The International Conference on Very Large Data Bases (VLDB)* 2020, and *French Conference on Management of Data (BDA)* 2020 [\[link to the paper\]](#) [\[link to the video\]](#)  
 Topics: **user data analytics**, **reinforcement learning**, **explainability**  
 Paper awarded as *the best research paper in BDA 2020*
9. Sruthi Viswanathan, Behrooz Omidvar-Tehrani, Adrien Bruyat, and Antonietta Maria Grasso. “Designing Ambient Wanderer: Mobile Recommendations for Urban Exploration”. In *ACM Conference on Designing Interactive Systems (DIS)*, 2020 [\[link to the paper\]](#) [\[link to the video\]](#)  
 Topics: **geospatial data analytics**, **visual analytics**, **interactive recommendation**
10. Sruthi Viswanathan, Behrooz Omidvar-Tehrani, Adrien Bruyat, Frederic Roulland, and Antonietta Maria Grasso. “Hybrid Wizard of Oz: Concept Testing a Recommender System”. In *CHI Late Breaking Works*, 2020 [\[link to the paper\]](#)  
 Topics: **geospatial data analytics**, **interactive recommendation**
11. Sihem Amer-Yahia, Shady Elbassuoni, Behrooz Omidvar-Tehrani, Ria M. Borromeo, and Mehrdad Farokhnejad. “GroupTravel: Customizing Travel Packages for Groups”. In *International Conference on Extending Database Technology (EDBT)*, 2019 [\[link to the paper\]](#)  
 Topics: **geospatial data analytics**, **user data analytics**, **interactive recommendation**, **multi-objective optimization**, **group recommendation**
12. Behrooz Omidvar-Tehrani, Sihem Amer-Yahia, and Laks V.S. Lakshmanan. “Cohort Representation and Exploration”. In *IEEE International Conference on Data Science and Advanced Analytics (DSAA)*, 2018, and *French Conference on Management of Data (BDA — non-archival)*, 2019 [\[link to the paper\]](#)  
 Topic: **health-care data analytics**  
 Paper awarded as *the best research paper in DSAA 2018*
13. Sobhan Moosavi, Behrooz Omidvar-Tehrani, R. Bruce Craig, Arnab Nandi, and Rajiv Ramnath, “Characterizing Driving Context from Driver Behavior”. In *The International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL)*, 2017 [\[link to the paper\]](#)  
 Topics: **geospatial data analytics**, **data mining**
14. Behrooz Omidvar-Tehrani and Sihem Amer-Yahia. “Online Lattice-based Abstraction of User Groups”. In *The International Conference on Database and Expert Systems Applications (DEXA)*, 2017 [\[link to the paper\]](#) [\[link to the video\]](#)  
 Topic: **user data analytics**
15. Behrooz Omidvar-Tehrani, Sihem Amer-Yahia, Pierre-Francois Dutot, and Denis Trystram. “Multi-Objective User Group Discovery on the Social Web”. In *The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery*

in *Databases (ECML/PKDD)*, 2016 [\[link to the paper\]](#) [\[link to the video\]](#)

Topics: **user data analytics**, **multi-objective optimization**

16. Behrooz Omidvar-Tehrani, Sihem Amer-Yahia, and Alexandre Termier. “Interactive User Group Analysis”. In *The International Conference on Information and Knowledge Management (CIKM)*, 2015 [\[link to the paper\]](#)

Topic: **user data analytics**

17. Sihem Amer-Yahia, Behrooz Omidvar-Tehrani, Senjuti Basu Roy, and Nafiseh Shabib. “Group Recommendation with Temporal Affinities”. In *The International Conference on Extending Database Technology (EDBT)*, 2015 [\[link to the paper\]](#)

Topics: **user data analytics**, **group recommendation**

## Peer-reviewed Workshop Papers

18. Behrooz Omidvar-Tehrani, Plácido A. Souza Neto, Francisco B. Silva Júnior, and Felipe F. Pontes. “Exploration of Interesting Dense Regions on Spatial Data”. In *The International workshop of Big Mobility Data Analytics co-located with EDBT*, 2020 [\[link to the paper\]](#) [\[link to the ArXiv\]](#) [\[link to the video\]](#)

Topics: **geospatial data analytics**, **interactive recommendation**

19. Behrooz Omidvar-Tehrani, Sruthi Viswanathan, Frederic Roulland, and Jean-Michel Renders. “SAGE: Interactive State-aware Point-of-Interest Recommendation”. In *The International workshop of State-based User Modeling co-located with WSDM*, 2020 [\[link to the paper\]](#) [\[link to the video\]](#)

Topics: **geospatial data analytics**, **interactive recommendation**

20. Behrooz Omidvar-Tehrani, Sihem Amer-Yahia, Eric Simon, Fabian Colque Zegarra, João L. D. Comba, and Viviane Moreira. “UserDEV: A Mixed-Initiative System for User Group Analytics”. In *The International Workshop on Human-In-the-Loop Data Analytics (HILDA) co-located with SIGMOD*, 2019 [\[link to the paper\]](#)

Topics: **user data analytics**, **visual analytics**

21. Behrooz Omidvar-Tehrani. “Augmented Therapy with Online Support Groups”. In *International Workshop on Data Management and Analytics for Medicine and Healthcare (DMAH) in conjunction with VLDB*, 2018 [\[link to the paper\]](#)

Topics: **health-care data analytics**, **group recommendation**

22. Sobhan Moosavi, Behrooz Omidvar-Tehrani, and Rajiv Ramnath. “Trajectory Annotation by Discovering Driving Patterns”. In *The International Workshop on Smart Cities and Urban Analytics (UrbanGIS)*, 2017 [\[link to the paper\]](#) [\[link to the ArXiv\]](#)

Topics: **geospatial data analytics**, **data mining**

23. Behrooz Omidvar-Tehrani, Plácido A. Souza Neto, Felipe Pontes, and Francisco Bento. “GeoGuide: An Interactive Guidance Approach for Spatial Data”. In *The International Workshop on Data Analytics Solutions for Real-life Applications (DARLI-AP) in conjunction with Smart Data*, June 2017 [\[link to the paper\]](#) [\[link to the video\]](#)

Topics: **geospatial data analytics**, **interactive recommendation**

24. Behrooz Omidvar-Tehrani, Sihem Amer-Yahia, Alexandre Termier, Aurelie Bertaux, Eric Gaussier, and Marie-Christine Rousset. “Towards a Framework for Semantic

Exploration of Frequent Patterns”. In *The International Workshop on Information Management in Mobile Applications in conjunction with VLDB*, August 2013

[\[link to the paper\]](#)

Topics: [user data analytics](#), [data mining](#)

## Peer-reviewed Demos

25. Sihem Amer-Yahia, Ria M. Borromeo, Shady Elbassuoni, [Behrooz Omidvar-Tehrani](#) and Sruthi Viswanathan. “Interactive Generation and Customization of Travel Packages for Individuals and Groups” In *The International Conference on Intelligent User Interfaces (IUI)*, 2020 [\[link to the paper\]](#)  
Topics: [geospatial data analytics](#), [user data analytics](#), [interactive recommendation](#), [group recommendation](#)
26. Cicero A. L. Pahins, [Behrooz Omidvar-Tehrani](#), Sihem Amer-Yahia, Valerie Siroux, Jean-Louis Pepin, Jean-Christian Borel, and Joao L. D. Comba. “COVIZ: A System for Visual Formation and Exploration of Patient Cohorts”. In *The International Conference on Very Large Data Bases (VLDB)*, 2019  
Topics: [health-care data analytics](#), [visual analytics](#)
27. Sihem Amer-Yahia, [Behrooz Omidvar-Tehrani](#), Joao Comba, Viviane Moreira, and Fabian Colque Zegarra. “Exploration of User Groups in VEXUS”. In *The International Conference on Data Engineering (ICDE)*, 2018 [\[link to the paper\]](#)  
Topics: [user data analytics](#), [visual analytics](#)
28. [Behrooz Omidvar-Tehrani](#), Arnab Nandi, Nicholas Meyer, Dalton Flanagan, and Seth Young. “Interactive Analysis of Aviation Data”. In *The International Conference on Data Engineering (ICDE)*, 2017  
[\[link to the paper\]](#) [\[link to the video\]](#) [\[link to the patent application\]](#)  
Topics: [geospatial data analytics](#), [visual analytics](#)

## Peer-reviewed Book Chapters

29. Sihem Amer-Yahia, Alexandre Termier, and [Behrooz Omidvar-Tehrani](#). “Interactive Analytics in Social Media”. In *Encyclopedia of Database Systems (Edition 2018)* [\[link to the book\]](#)  
Topic: [user data analytics](#)
30. Sihem Amer-Yahia, Alexandre Termier, and [Behrooz Omidvar-Tehrani](#). “Social Media Analytics”. In *Encyclopedia of Database Systems (Edition 2018)* [\[link to the book\]](#)  
Topic: [user data analytics](#)

## Tutorials

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- [Behrooz Omidvar-Tehrani](#) and Sihem Amer-Yahia. “Data Pipelines for User Group Analytics”. In *The International Conference on Management of Data (SIGMOD)*, 2019

and *The French Conference on Management of Data (BDA — non-archival)*, 2019

Topics: [user data analytics](#), [visual analytics](#)

- [Behrooz Omidvar-Tehrani](#) and Sihem Amer-Yahia. “User Group Analytics: Discovery, Exploration and Visualization”. In *The International Conference on Information and Knowledge Management (CIKM)*, 2018

Topics: [user data analytics](#), [visual analytics](#)

## Theses

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- Optimization-based User Group Management: Discovery, Analysis, Recommendation (PhD Thesis), Grenoble, France, November 2015 [\[link to the thesis\]](#) [\[abstract\]](#) [\[details\]](#)  
Topics: [user data analytics](#), [data mining](#), [multi-objective optimization](#), [group recommendation](#)
- An Interactive Exploration Framework for Frequent Usage Patterns (Master Thesis), Grenoble, France, June 2012 [\[link to the thesis\]](#)  
Topics: [user data analytics](#), [data mining](#)

## Invited Presentations

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1. Enabling Interactivity between Human and Artificial Intelligence.  
In *The 2nd Workshop on Smart Data Integration and Processing on Service Based Environments (STRAPS 2020) in conjunction with ICSOC 2020*, December 14, 2020  
Also in *Ferdowsi University of Mashhad*, Iran, December 29, 2020  
Topics: [user data analytics](#), [exploration as reinforcement learning](#), [explainability](#)
2. Visual Formation and Comparison of Patient Cohorts. In *HPE Innovation Day, Transfo Festival*, January 25, 2019  
Topics: [health-care data analytics](#), [visual analytics](#)
3. Representation and Exploration of Patient Cohorts.  
In *Global Challenges Science Week (Environment, Aging and Future Medicine: Common Challenges for Society) in University of Grenoble Alpes*, June 3, 2019  
Also in *Technische Universität (TU) Dortmund, Germany*, February 21, 2019  
Also in *MaDICS Workshop on Big Data and Data Science in Strasbourg*, November 20, 2018  
Also in *Center for Engineering and Health in Mines Engineering School of Saint-Etienne*, November 12, 2018  
Also in *Artificial Intelligence Committee of Lyon Hospital*, October 22, 2018  
Also in *The 5th International Conference on Data Science and Advanced Analytics*, October 2, 2018  
Also in *The Workshop on Machine Learning and Statistics for Medical Data*, September 21, 2018  
Also in *AI Health Workshop in FADEX Doctoral Exchange Program*, June 27, 2018  
Topic: [health-care data analytics](#)



4. Interactivity on Groups: Applications to Spatiotemporal Datasets. In *Naver Labs Europe (NLE), Meylan, France*, September 2018  
Topics: [geospatial data analytics](#), [user data analytics](#)
5. Bridging the Gap between User Data Exploration and Information Visualization. In *Azad University of Mashhad, Iran*, December 2017  
Also in *Federal University of Rio Grande do Sul, Porto Alegre, Brazil*, October 2017  
Topics: [user data analytics](#), [visual analytics](#)
6. Interactive Analysis of Spatiotemporal Data. In *Ferdowsi University of Mashhad, Iran*, December 2017  
Also in *Federal Institute of Rio Grande do Norte, Brazil*, October 2017  
Also in *Research Commons @ The Ohio State University*, May 2017  
Also in *Meeting with FAA (Federal Aviation Administration) Officials*, April 2016  
Topic: [geospatial data analytics](#)

## Teaching experience

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1. Distributed Databases (Architecture, Transaction Processing and NoSQL). In *ENSIMAG Engineering School (Inf. Sys. Engineering)*, 15 hours, October 2017 — November 2017, and *Master of Big Data*, 9 hours, November-December 2017
2. CSE 5249: Interactive Data Systems. In *The Ohio State University*, In collaboration with Arnab Nandi, February 2016
3. Introduction to Databases. In *IUT2 (Pierre Mendès University, France)*, 54 hours, November 2014 – January 2015, and *The Ohio State University*, September 2016 — December 2016
4. Social Web (Top-k Algorithms, NRA). In *Master MOSIG (Artificial Intelligence and the Web)* and *Master of Big Data*, In collaboration with Sihem Amer-Yahia, 9 hours, November 2014 and 2015
5. Operating Systems and Networks. In *IUT2 (Pierre Mendès University, France)*, 21 hours, September — November 2014

## Advising and Mentoring

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1. Saimourya Surabhi (5th year of engineering school). “Intent Aware Point-Of-Interest Recommendation”. In *Ecole Centrale Nantes, France*, May 2020 — October 2020  
Topics: [geospatial data analytics](#), [interactive recommendation](#)
2. Najwa Ez-zine, Maryam Youlal, Charles Curtit, and Besem Abid (students of Big Data Master’s program). “Ambient Point-of-Interest Recommendation”. In *Grenoble Management School*, October 2019 — February 2020  
Topics: [geospatial data analytics](#), [interactive recommendation](#)

3. Sabina Horincar, Mariia Selezniova, and Ravi Shankar (Master 2 students) and Charles J. Marshall (Master 1 student). “UserPipes: Data Pipelines for User Group Analytics (Discovery, Exploration, and Visualization)”. In *University of Grenoble Alpes*, co-supervised with Sihem Amer-Yahia and Eric Simon (SAP Paris), February — June 2019  
Topics: [user data analytics](#), [reinforcement learning](#), [visual analytics](#), [data mining](#)
4. Loïc de Jouette, Fabrice la Mouche, and Ulric Musset (students of Big Data Master’s program). “Interactive Visualization of Patient Cohorts”. In *Grenoble Management School*, co-supervised with Sébastien Bailly, Nathanaël Lemonnier, Jean-Louis Pépin, Sihem Amer-Yahia and Bertrand Chevrier, October 2017 — February 2018  
Topics: [health-care data analytics](#), [visual analytics](#)
5. Mohamed Bradei (2nd year of engineering school). “Interactive Visualization of Evolutions in User Data”. In *ENSTA ParisTech*, co-supervised with Sihem Amer-Yahia, May 2017 — August 2017  
Topics: [user data analytics](#), [visual analytics](#)
6. Dalton Flanagan (BS 2017, currently software engineer at Facebook) and Nicholas Meyer (BS 2018). “Interactive Analytics for SpatioTemporal Data”. In *The Ohio State University*, co-supervised with Arnab Nandi and Seth Young, February 2016 — May 2017  
Topics: [geospatial data analytics](#), [visual analytics](#)  
(N. Meyer got the first prize in the 2017 Denman Undergraduate Research Forum)
7. Mohit Deshpande (BS 2017). “Data Exploration by Vision”. In *The Ohio State University*, co-supervised with Arnab Nandi, June 2016 — May 2018  
Topic: [user data analytics](#)  
(M. Deshpande got the third place in 2017 OSU Thesis Competition)
8. Miratul Mufida (Master 1 student). “Group Visualization for Exploratory Data Analysis”. In *University of Grenoble Alpes*, co-supervised with Sihem Amer-Yahia and Alexandre Termier, February — June 2014  
Topics: [user data analytics](#), [visual analytics](#)

## Professional Activities

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### Journal Referee

- Elsevier Journal of Computers, Environment and Urban Systems
- Journal of Advances in Knowledge Discovery and Management Vol. 9 (AKDM-9)
- Elsevier Journal on Information Systems (2017-2020)
- IEEE Transactions on Knowledge and Data Engineering (TKDE) (2015-2016)
- Springer Journal on Data Mining and Knowledge Discovery (DAMI) (2016)



## Conference and Workshop Program Committee Member

- 3rd International Workshop on Big Data Visual Exploration and Analytics (BigVis), 2020
- International Workshop on Human-In-the-Loop Data Analytics (HILDA), 2020
- International Conference of Management of Data (SIGMOD, Demo Track), 2020
- International Conference on Extending Database Technology (EDBT), 2020
- IEEE VIS, 2019
- Association for the Advancement of Artificial Intelligence (AAAI), 2018
- International Conference on Data Engineering (ICDE), 2017
- French Conference on Data Management (BDA, Demo Track), 2017
- International Conference of Very Large Databases (VLDB), 2016 and 2017
- ACM International Conference on Information and Knowledge Management (CIKM), 2016
- SIAM International Conference on Data Mining (SDM), 2013 and 2014
- IEEE International Conference on Data Mining (ICDM), 2013

## Organizing Committee Member

- Program co-chair at *The International Workshop on Explainability for Trustworthy ML Pipelines (ETMLP 2020)* co-located with *EDBT 2020*, March 2020 [\[link to the workshop\]](#)

## Honors, Grants, and Awards

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- CAPES-COFECUB Grant 2018-2019, in collaboration with Sihem Amer-Yahia (CNRS), Joao Comba (UFRGS) and Viviane Moreira (UFRGS)
- Grant Award from Federal Institute of Rio Grande do Norte, Brazil, in collaboration with Placido Antonio de Souza Neto (IFRN)
- Best Presentation and Poster Award, LIG PhD Day, 27 March 2014
- First Challenge Prize, EDBT 2013 Summer School

## Recommendations

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**Sihem Amer-Yahia** (Research Director at CNRS France):

“Behrooz is a thorough researcher who has interest in a variety of topics in human in the loop analytics. He has demonstrated an exceptional ability to adapt to different environments: academia and industry, Europe and US. Behrooz has a unique ability to think independently and work with others. His sense of detail and his organization skills are great to have in a team. His curiosity and interests in a variety of topics in large-scale data processing, user modeling, evaluation with human subjects and data visualization constitute an ideal mix to advance today’s human-centric data science applications. Behrooz has excellent abstraction skills and give very good talks. Last but not least, Behrooz is able to work in a goal-driven intense environment while being very pleasant to interact with.”

**Laks V.S. Lakshmanan** (Professor at University of British Columbia, Canada):

“Behrooz and I collaborated on a research project on developing a framework and system for exploring patient medical trajectories along with his PhD adviser Sihem Amer-Yahia. Behrooz’s work on the project resulted in many publications, one of which received the Best Paper Award in the IEEE Data Science and Advanced Analytics (DSAA) Conference 2018, Turin, Italy. Behrooz is committed, reliable, talented, and hardworking. I recommend him to any challenging position in Data Science strongly and without any reservations.”

**Senjuti Basu Roy** (Assistant Professor at New Jersey Institute of Technology, USA):

“It was a pleasure to work with Behrooz. Behrooz possess solid analytical, algorithm development, and system implementation skills. He communicates effectively and is adept in technical writing. Behrooz is energetic, passionate to bring success to research projects, and always keen to learn new technologies! He is a great team player, as well as an outstanding individual contributor. I wish him all the best in his future endeavors.”