

# Tabassum Kakar (CV)

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**Portfolio:** <https://tkakar.github.io/Website/>

<https://www.linkedin.com/in/TabassumKakar>

## Summary

- Self-motivated user-centered design and research enthusiast with > 5 years' experience in designing and conducting qualitative and quantitative research including in-person interviews and usability studies to design and evaluate visual analytics for improving drug safety review practices.
- Strong leadership, communication, and teamwork skills established by leading projects across inter-disciplinary teams as well as industry stakeholders and researchers leading to multiple collaborations with more than 10 peer reviewed scientific publications.
- Remarkable leadership and time management skills with a unique combination of detail-oriented user-focused mindset, problem-solving skills and proven ability to meet deadlines resulting in securing more than \$200,000 in scholarships and fellowships.

## Work Experience

### Data Science Research Assistant

Sep 2015 – Aug 2020

Worcester Polytechnic Institute

- Identified user needs and research questions via literature review and user research by designing and conducting interviews and field studies to derive use-cases for drug safety review practices.
- Designed and conducted generative and evaluative research via interviews and experiments and analyzed user data to derive insights for informing the design of analytics prototypes.
- Led the complete lifecycle of development of analytics solutions from ideation to designing storyboards to the development and evaluation of the interactive prototypes via usability studies.

### Oak Ridge Institute of Science & Education (ORISE) Fellow

Sep 2016 – Mar 2019

U.S. Food and Drug Administration

- Gathered insights about user needs and workflows via surveys, interviews, and field visits.
- Designed visual analytics solutions following an iterative user-centered-design approach.
- Conducted qualitative and quantitative evaluation studies, including usability tests and interviews.
- Presented findings and communicated insights and technical content to diverse audiences.

### Database Administrator

Oct 2013 – Jul 2014

Microfinance Investment Support Facility (MISFA), Afghanistan

- Evaluated the design and functionality of the existing client management system via pilot testing.
- Synthesized user feedback gathered via usability studies and interviews, into actionable insights.
- Refined the application design to meet user needs resulting in cost reduction by \$90,000.

**Business Intelligence Developer**

Jul 2012 – Sep 2013

Mobile Telecommunication Network (MTN), Kabul Afghanistan

- Translated business needs into technical specifications for designing BI-reports.
- Developed SQL queries to generate BI reports with information to drive business decisions.
- Designed dashboard visualizations to monitor KPIs such as subscribers and revenue growth.

**Assistant Software Developer**

Jun 2011 – Jul 2012

Kardan University, Kabul Afghanistan

- Elicited user requirements and derived use-cases for the Finance and HR departments.
- Developed desktop applications for student record management using VB.Net and MySQL.
- Designed reports for cash flow analysis and management for the finance department.

**ADDITIONAL EXPERIENCE:**

- Graduate Student Assistant at Data Science Program, WPI, USA. May - Aug, 2016
- Teaching Assistant at Frontier & Launch program, WPI, USA. Jul - Aug, 2015
- Part Time Lecturer at Kardan University, Afghanistan. Sep 2011 - May 2012
- Database Developer Intern at GS Constructions, Afghanistan. May - Aug, 2010

**Education**

**Ph.D. | Data Science** | GPA 4.0/4.0 | Worcester Polytechnic Institute (WPI), USA. Aug 2014 – Aug 2020

**B.S. | Software Engineering** | GPA 3.4/4.0 | GIKI, Pakistan. Aug 2007 – Jun 2011

**Publications:**

- **[EuroVis'19]** *DIVA: Exploration and Validation of Hypothesized Drug-Drug Interactions.* **Tabassum Kakar**, Xiao Qin, Elke Rundensteiner, Lane Harrison, Sanjay Sahoo and Suranjan De.
- **[IVAPP'19]** *MEV: Visual Analytics for Medication Error Detection.* **Tabassum Kakar**, Xiao Qin, Cory Tapply, Derek Murphy, Daniel Yun, Oliver Spring, Elke A. Rundensteiner, Lane Harrison, Thang La, Sanjay K. Sahoo and Suranjan De.
- **[Drug Safety'19]** *Adverse Drug Event Detection from Electronic Health Records Using Hierarchical Recurrent Neural Networks with Dual-Level Embeddings.* Susmitha Wunnava, Xiao Qin, **Tabassum Kakar**, Cansu Sen, Elke A. Rundensteiner and Xiangnan Kong.
- **[URTC'18]** *Drug-Drug Interaction Signal Detection from Drug Safety Reports.* Brian Zylich, Brian McCarthy, Andrew Schade, Huy Quoc Tran, Xiao Qin, **Tabassum Kakar** and Elke A. Rundensteiner.
- **[CIKM'18 Demo]** *DEVES: Interactive Signal Analytics for Drug Safety.* **Tabassum Kakar**, Xiao Qin, Susmitha Wunnava, Brian McCarthy, Andrew Schade, Huy Quoc Tran, Brian Zylich, Elke A. Rundensteiner, Lane Harrison, Sanjay K. Sahoo and Suranjan De.

- **[AMIA'18 Poster]** *Deep Learning Strategies for the Automatic Detection of Medication and Adverse Drug Events from Electronic Health Records*. Susmitha Wunnava, Xiao Qin, **Tabassum Kakar**, Elke A. Rundensteiner and Xiangnan Kong.
- **[MADE'18 Workshop]** *Bidirectional LSTM-CRF for Adverse Drug Event Tagging in Electronic Health Records*. Susmitha Wunnava, Xiao Qin, **Tabassum Kakar**, Elke A. Rundensteiner and Xiangnan Kong.
- **[ICDE'18 Demo]** *Multi-Drug Adverse Reactions Analytics*. Xiao Qin, **Tabassum Kakar**, Susmitha Wunnava, Brian McCarthy, Andrew Schade, Huy Quoc Tran, Brian Zylich, Elke A. Rundensteiner, Lane Harrison, Sanjay K. Sahoo and Suranjan De.
- **[HEALTHINF'18]** *One Size Does Not Fit All: An Ensemble Approach Towards Information Extraction from Adverse Drug Event Narratives*. Susmitha Wunnava, Xiao Qin, **Tabassum Kakar**, Xiangnan Kong, Elke Rundensteiner, Sanjay Sahoo and Suranjan De.
- **[BIOSTEC'18]** *Multi-layered Learning for Information Extraction from Adverse Drug Event Narratives*. Susmitha Wunnava, Xiao Qin, **Tabassum Kakar**, M. L. Tlachac, Xiangnan Kong, Elke A. Rundensteiner, Sanjay K. Sahoo, and Suranjan De.
- **[KDD'17]** *MARAS: Signaling Multi-Drug Adverse Reactions*. Xiao Qin, **Tabassum Kakar**, Susmitha Wunnava, Elke Rundensteiner and Lei Cao.
- **[SAC'17]** *Towards Transforming FDA Adverse Event Narratives into Actionable Structured Data for Improved Pharmacovigilance*. Susmitha Wunnava, Xiao Qin, **Tabassum Kakar**, Vimig Socrates, Amber Wallace and Elke Rundensteiner.

## Talks/Posters

- *MedViz: Visual Analytics for Medication Error Detection*. International Conference on Information Visualization and Applications (IVAPP). Prague, Czech Republic. Feb 2019.
- *ConText: Supporting the Pursuit and Management of Evidence in Text-based Reporting Systems*. Graduate Research Innovation Exchange (GRIE). WPI, Worcester, MA. Feb 6, 2019.
- *ConText: Supporting the Pursuit and Management of Evidence in Text-based Reporting Systems*. New England Database Summit (NEDB). MIT, Cambridge, MA. Jan24, 2019.
- *DEVES: Interactive Signal Analytics for Drug Safety*. Conference on Information and Knowledge Management (CIKM). France, Paris. Apr 2018.
- *DIVA: Towards Validation of Hypothesized Drug-Drug Interactions via Visual Analysis*. New England Database Summit (NEDB). MIT, Cambridge, MA. Jan 19, 2018.
- *DIVA: Towards Validation of Hypothesized Drug-Drug Interactions via Visual Analysis*. Graduate Research Innovation Exchange (GRIE). WPI, Worcester, MA. Apr 11, 2017.
- *Towards Pharmacovigilance using Machine Learning to Identify Unknown Adverse Reactions Triggered by Drug-Drug Interaction*. UMCCTS Community Engagement and Research Symposium. UMass Medical School, Worcester, MA. March 25, 2016.

## Awards and Achievements

- Oak Ridge Institute for Science and Education (ORISE) fellowship, USA. 2016 – 2019
- WPI Travel Award. 2018, 2019
- WPI Data Science Citizen Award. May 2017
- 3rd place in WPI GRIE Poster Competition. Apr 2017
- WPI Data Science Community Leadership Award. May 2016
- Fulbright scholarship for fully funded MS at WPI, USA. 2014 - 2016
- Grace Hopper Conference (GHC) travel scholarship. 2015, 2016
- Lucky Cement scholarship for fully funded BS at GIKI, Pakistan. 2007 - 2011
- Gold medalist. Ranked (1/35) in Software Engineering Program, GIKI, Pakistan. Jun 2011

## Activities

- Executive member of WPI Data Science Council. 2015 - 2020
- Reviewer at VLDB, Applied Clinical informatics, and AMIA. 2018, 2020, 2020
- Executive member of WPI Muslim Student Association (MSA). Sep - Dec, 2015
- Volunteer at Boston Data Festival, Microsoft NERD Boston. Sep 18 - 23, 2015
- Volunteer at Touch Tomorrow Event, WPI. Jun 2015

## Technical Skills

Data Visualization	Programming	Tools	Other Skills
D3.js	Python	Weka	Data Manipulation
React	R	IBM Modeler	Machine Learning
Tableau	JavaScript	XLMiner	Statistical Analysis
<b>Databases</b>	CSS	MongoDB	Data Visualization
SQL	HTML	Pig	Storyboarding
MySQL, NoSQL	C/C++	Latex	Business Need Analysis

**Interests:** Hiking, Baking and Music

**Publications (11):** <https://scholar.google.com/citations?user=yDwzxBcAAAAJ>

**References:** Available upon request