Maulik Rajendra Kamdar

1500 Locust Street, Apt. #3709, Philadelphia, PA 19102

650-285-8748 • maulik@maulik-kamdar.com • www.maulik-kamdar.com

EDUCATION

Stanford University Stanford, CA
Doctor of Philosophy (Ph.D.), Biomedical Informatics Program 2014 – 2018
Dissertation: *A Web-based Integration Framework over Heterogeneous Biomedical Data and Knowledge Sources*

Indian Institute of Technology (IIT), Kharagpur Kharagpur, India
B.Tech. (Honors) and M.Tech., Biotechnology and Biochemical Engineering 2007 – 2012

EXPERIENCE

Center for Biomedical Informatics Research, Stanford University Stanford, CA
Graduate Student Researcher Sep. 2014 – current

- Advisor: Dr. Mark Musen
- Developed a semantic web architecture for integrating biomedical data and knowledge from multiple sources.
- Developed methods to discover pharmacological associations from FDA adverse event reporting system.
- Analyzed how users explore, query and reuse concept terms across more than 300 biomedical ontologies.
- Developed an application to monitor emotional state using Samsung wearables and machine learning models.
- Developed a deep learning architecture to predict MGMT methylation status using glioblastoma MRI scans.

BIOMEDIN 210 / CS 270 : Modeling Biomedical Systems, Stanford University Stanford, CA
Co-Instructor and Teaching Assistant Sep. 2015 – Feb. 2019

- Presented full lectures on Knowledge Representation, Description Logics, and Linked Data.
- Led hands-on sessions on ontology development and rule-based reasoning using Protégé software.
- Created new course content for several lectures as well as developed interactive ontology-based student homework assignments (e.g., developing and using a Pokémon ontology and a Harry Potter ontology).
- Mentored ≈ 200 students in 4 years on developing biomedical applications using ontologies and data sources.

Digital Enterprise Research Institute, NUI Galway Galway, Ireland
Linked Data Researcher July 2012 – July 2014

- Supervisors: Dr. Stefan Decker and Dr. Helena Deus
- Developed a platform that integrates and visualizes GWAS and pathway knowledge with TCGA patients data.
- Developed a federated interface for searching 80+ databases relevant to cancer chemoprevention research.
- Developed the first version of the Data.gov.ie platform for search and access of open Irish datasets.

Google Summer of Code Program - Reactome Kharagpur, India
Summer of Code Researcher June – Aug. 2011, 2012

- Supervisors: Dr. Guanming Wu and Dr. David Croft
- Developed HTML5 interfaces to visualize and summarize biological pathways in the Reactome database.

Digital Enterprise Research Institute, NUI Galway Galway, Ireland
Visiting Student Researcher June – July 2011

- Developed a Drupal module for querying and visualizing semantically-enriched multi-dimensional statistics.

Department of Biotechnology, IIT Kharagpur Kharagpur, India
Undergraduate Student Researcher Aug. 2010 – May. 2012

- Isolated and characterized an extracellular antifungal protein from an endophytic fungal isolate.

Google Summer of Code Program - Drupal   Kharagpur, India
Summer of Code Researcher   June – Aug. 2010
- Developed a module for providing HTML5 support to the Drupal open-source content management platform.

Biocon Foundation   Bangalore, India
Project Trainee   May – June 2010
- Analyzed claims and enrollment data to detect usage trends for a health micro-insurance scheme.

HONORS AND AWARDS

Student Teaching Excellence Award - Stanford University	2018
Distinguished Paper Award - American Medical Informatics Association Symposium	2017
Student Best Paper Award - 16th International Semantic Web Conference	2017
Honorable Mention - International Medical Informatics Association Yearbook	2017
Best Poster Awards *(4 consecutive years)* - Stanford Biomedical Informatics Retreat	2015–2018
NSF/NIH Travel Awards - ISWC 2017-2018, US2TS 2018-2019, GRC 2016, PSB 2016	2016–2019
Best Paper Award - 7th Conference on Semantics in Healthcare and Life Sciences	2014
Semantic Web Challenge Award - 12th International Semantic Web Conference	2013
Best Project Award - 10th Summer School on Ontology Engineering and the Semantic Web	2013
Best Poster Award - 10th Summer School on Ontology Engineering and the Semantic Web	2013
Google Summer of Code Scholarships *(3 consecutive years)* - Drupal and Reactome	2010–2012
Honorable Mention in Technology - Indian Institute of Technology, Kharagpur	2012
Best Outgoing Student *(Technology)* - Meghnad Saha Hall of Residence, IIT Kharagpur	2012
Xavierite Super Award - St. Xavier's High School, Ahmedabad	2007

REFEREED PUBLICATIONS (21 Total)

1. Gonçalves RS, **Kamdar MR**, Musen MA. Aligning Metadata with Ontology Terms Using Clustering and Embeddings. *Proceedings of the 16th Extended Semantic Web Conference*, June 2019.

2. Polleres A, **Kamdar MR**, Fernandez JD, Tudorache T, Musen MA. A More Decentralized Vision for Linked Data. *Proceedings of the ISWC 2018 workshop on Decentralizing the Semantic Web*, October 2018.

3. **Kamdar MR**. Mining the Web of Life Sciences Linked Open Data for Mechanism-Based Pharmacovigilance. *Companion Proceedings of the The Web Conference 2018*, April 2018.

4. **Kamdar MR**, Walk S, Tudorache T, Musen MA. Analyzing User Interactions with Biomedical Ontologies: A Visual Perspective. *Journal of Web Semantics*, March 2018.

5. Han L*, **Kamdar MR***. MRI to MGMT: Predicting Methylation Status in Glioblastoma Patients Using Convolutional Recurrent Neural Networks. *Proceedings of the 23rd Pacific Symposium on Biocomputing*, January 2018.

6. **Kamdar MR**, Musen MA. Mechanism-Based Pharmacovigilance Over the Life Sciences Linked Open Data Cloud. *Proceedings of the AMIA Annual Symposium*, November 2017. **DISTINGUISHED PAPER AWARD**.

7. **Kamdar MR**, Walk S, et al. BiOnIC: A Catalog of User Interactions with Biomedical Ontologies. *Proceedings of the 16th International Semantic Web Conference*, October 2017. **STUDENT BEST PAPER AWARD**.

8. **Kamdar MR**, Tudorache T, Musen MA. A Systematic Analysis of Term Reuse and Term Overlap across Biomedical Ontologies. *Semantic Web*, June 2017. **IMIA YEARBOOK HONORABLE MENTION**.

9. **Kamdar MR**, Musen MA. PhLeGrA: Graph Analytics in Pharmacology over the Web of Life Sciences Linked Open Data. *Proceedings of the 26th World Wide Web Conference*, April 2017.

10. **Kamdar MR***, Wu MJ*. PRISM: A Data-driven Platform for Monitoring Mental Health. *Proceedings of the 21st Pacific Symposium on Biocomputing*, January 2016.

11. **Kamdar MR**, Tudorache T, Musen MA. Investigating Term Reuse and Overlap in Biomedical Ontologies. *Proceedings of the 6th International Conference on Biomedical Ontology*, July 2015.

12. **Kamdar MR**, Dumontier M. An Ebola Virus-centered Knowledge Base. *Database: The Journal of Biological Databases and Curation*, April 2015.

13. Hasnain A, Zainab SS, **Kamdar MR**, Mehmood Q, Warren CN, et al. A Roadmap for navigating the Life Sciences Linked Open Data Cloud. *Proceedings of the 4th Joint International Semantic Technology*, November 2014.

14. Saleem M, **Kamdar MR**, Iqbal A, Sampath S, Deus HF, Ngomo AC. Big Linked Cancer Data: Integrating Linked TCGA and PubMed. *Journal of Web Semantics*, October 2014.

15. Kazemzadeh L, **Kamdar MR**, Beyan OD, Decker S, Barry F. LinkedPPI: Enabling Intuitive, Integrative Protein-Protein Interaction Discovery. *Proceedings of the 4th Workshop on Linked Science, ISWC*, October 2014.

16. Hasnain A, **Kamdar MR**, Hasapis P, Zeginis D, et al. Linked Biomedical Dataspace: Lessons Learned integrating Data for Drug Discovery. *Proceedings of the 13th International Semantic Web Conference*, October 2014.

17. Cyganiak R, **Kamdar MR**, Maali F, Lee D, Decker S. Open Data Ireland: Data Audit Report. *Irish Open Data Initiative*, May 2014 (Book Chapter).

18. **Kamdar MR**, et al. GenomeSnip: Fragmenting the Genomic Wheel to augment discovery in cancer research. *7th Conference on Semantics in Healthcare and Life Sciences*, February 2014. **BEST PAPER AWARD**.

19. **Kamdar MR**, Zeginis D, Hasnain A, Decker S, Deus HF. ReVeaLD: A User-driven Domain-specific Interactive Search Platform for Biomedical Research. *Journal of Biomedical Informatics*, February 2014.

20. Croft D, Mundo AF, Haw R, Milacic M, Weiser J, Wu G, Caudy M, Garapati P, Gillespie M, **Kamdar MR**, Jassal B, et al. The Reactome Pathway Knowledgebase. *Nucleic Acids Research (Database Issue)*, January 2014.

21. Saleem M, **Kamdar MR**, Iqbal A, Sampath S, Deus HF, Ngomo AC. Fostering Serendipity through Big Linked Data. *Semantic Web Challenge, ISWC*, October 2013. **SEMANTIC WEB CHALLENGE AWARD**.

22. Dey P, **Kamdar MR**, Mandal SM, Maiti MK. Identification of an extracellular antifungal protein from the endophytic fungus *Colletotrichum* DM06. *Protein and Peptide Letters*, February 2013.

IN-PROGRESS PUBLICATIONS

1. **Kamdar MR**, Musen MA. An Empirical Meta-analysis of the Life Sciences (Linked?) Open Data Cloud.

2. Maitra A, Zulman DM, **Kamdar MR**, Haverfield MC, Thadaney S, Verghese A, Musen MA. Using Anthropological Methods to Classify the Human Experience in Medicine: A Case Study of the Presence Ontology.

PODIUM PRESENTATIONS (14 Total)

1. **Kamdar MR**, Walk S, Tudorache T, Musen MA. "Analyzing User Interactions with Biomedical Ontologies: A Visual Perspective". *17th International Semantic Web Conference*, October 2018. **INVITED TALK**.

2. **Kamdar MR**, Tudorache T, Musen MA. "A Systematic Analysis of Term Reuse and Term Overlap across Biomedical Ontologies". *17th International Semantic Web Conference*, October 2018. **INVITED TALK**.

3. **Kamdar MR**. "A Web-based Integration Framework over Biomedical Data and Knowledge Sources". *One Medical Group, San Francisco*, September 2018. **INVITED TALK**.

4. **Kamdar MR**. "Semantic Web Methods for Biomedical Data Integration: An Application in Pharmacovigilance". *NASA Ames Research Center (Intelligent Systems Division)*, August 2018. **INVITED TALK**.

5. **Kamdar MR**. "A Web-based Integration Framework over Heterogeneous Biomedical Data and Knowledge Sources". *Stanford Biomedical Informatics Program Defense Talk*, June 2018.

6. **Kamdar MR**. "Mining the Web of Life Sciences Linked Open Data for Mechanism-Based Pharmacovigilance". *The Web Conference 2018*, April 2018.

7. **Kamdar MR**, Musen MA. "Mechanism-based Pharmacovigilance over the Life Sciences Linked Open Data Cloud". *American Medican Informatics Association Annual Symposium*, November 2017.

8. **Kamdar MR**, Walk S, Tudorache T, Musen MA. "BiOnIC: A Catalog of User Interactions with Biomedical Ontologies". *16th International Semantic Web Conference*, October 2017.

9. **Kamdar MR**, Musen MA. "Graph Analytics in Pharmacology over the Web of Life Sciences Linked Open Data". *26th World Wide Web Conference*, April 2017.

10. **Kamdar MR**. "Query Federation over the Life Sciences Linked Open Data Cloud". *Biomedical Informatics Research Seminar*, November 2016.

11. **Kamdar MR***, Wu MJ*. "PRISM: A Data-driven Platform for Monitoring Mental Health". *21st Pacific Symposium on Biocomputing*, January 2016.

12. **Kamdar MR**, Tudorache T, Musen MA. "Investigating Term Reuse and Overlap in Biomedical Ontologies". *6th International Conference on Biomedical Ontology*, July 2015.

13. **Kamdar MR**. "Current advances to bridge the usability–expressivity gap in semantic search (and visualizing linked data)". *Protégé Research Seminar*, March 2015.

14. **Kamdar MR**, et al. "ReVeaLD: a Real-time Visual Explorer and Aggregator of Linked Data". *Digital Enterprise Research Institute Research Seminar*, April 2013.

POSTER PRESENTATIONS (13 Total)

1. Yim W, **Kamdar MR**, Ludwig D, Harpaz R, Tamang S. "Prototyping a Scope-constraint Dictionary-based Method for Eligibility Criteria Determination.". *National NLP Clinical Challenges (N2C2) Workshop, co-located with AMIA 2018*, November 2018.

2. **Kamdar MR**, Musen MA. "PhLeGrA: Jumping Spiders over the Web of Life Sciences Linked Open Data". *Stanford Biomedical Informatics Annual Poster Session*, September 2018. **BEST POSTER AWARD**.

3. **Kamdar MR**, Musen MA. "Mining the Life Sciences Linked Open Data Cloud: An Application to Discover Drug-Adverse Reaction Associations". *1st US Semantic Technologies Symposium*, March 2018.

4. Han L*, **Kamdar MR***. "MRI to MGMT: Predicting Methylation Status in Glioblastoma Patients Using Convolutional Recurrent Neural Networks". *23rd Pacific Symposium on Biocomputing*, January 2018.

5. **Kamdar MR**, et al. "Analyzing User Interactions with Biomedical Ontologies: A Visual Perspective". *Stanford Biomedical Informatics Annual Poster Session*, September 2017. **BEST POSTER AWARD**.

6. **Kamdar MR**, Musen MA. "Mining the Life Sciences Linked Open Data Cloud". *Stanford Biomedical Informatics Annual Poster Session*, September 2016. **BEST POSTER AWARD**.

7. **Kamdar MR**, Musen MA. "Mining the Life Sciences Linked Open Data Cloud for Drug–Adverse Reaction Association Discovery". *1st Gordon Research Conference on Advanced Health Informatics*, July 2016.

8. Han L*, **Kamdar MR***, Kim D*. "Predicting Transcription Factor Complexes Using Similarities in Genomic Motifs". *Big Data in Biomedicine Conference*, April 2016.

9. **Kamdar MR**, Tudorache T, Musen MA. "Extracting Similar Flavors in the Spaghetti of Biomedical Ontologies". *Stanford Biomedical Informatics Annual Poster Session*, September 2015. **BEST POSTER AWARD**.

10. Han L*, **Kamdar MR***, Haynes WA*, Schuler A*. "Bioinformatics Search". *Big Data in Biomedicine Conference*, April 2015.

11. **Kamdar MR**, et al. "An Ebola-centered Knowledge Base". *Bio-X Interdisciplinary Symposium*, February 2015.

12. **Kamdar MR**. "Visualizing Personalized Cancer Risk Prediction". *CS229 Poster Session*, December 2014.

13. **Kamdar MR**. "ReVeaLD: A user-driven domain-specific interactive search platform for biomedical research". *10th Summer School on Ontology Engineering and the Semantic Web*, July 2013. **BEST POSTER AWARD**.

LEADERSHIP EXPERIENCE

Goggles Optional: Student-run Weekly Science Podcast — Stanford, CA
Web and Graphics Developer — 2015 – current

Biomedical Computation at Stanford (BCATS 2016) Conference — Stanford, CA
Meeting Organizer — 2015 – 2016

Meghnad Saha Hall of Residence, IIT Kharagpur — Kharagpur, India
Technology Head — 2010 – 2012

Department of Biotechnology, IIT Kharagpur — Kharagpur, India
Vice President — 2010 – 2011

Kshitij: IIT Kharagpur Techno-Management Symposium — Kharagpur, India
Web Team Lead Developer — 2008 – 2010

ACADEMIC SERVICE

Stanford University — Stanford, CA
Co-Instructor and Teaching Assistant (4 terms): — 2016 – 2019
"Modeling Biomedical Systems: Ontology, Terminology, Problem Solving"
STUDENT TEACHING EXCELLENCE AWARD

International Semantic Web Conference (ISWC 2019) — Stanford, CA
Program Committee Member — Oct. 2019

Extended Semantic Web Conference (ESWC 2019) — Stanford, CA
Program Committee Member — Jun. 2019

Workshop on Intelligence & Interaction in Knowledge Engineering (IIKE 2019) — Newport Beach, CA
Program Committee Member — Oct. 2018

American Medical Informatics Association Annual Symposium (AMIA 2018)   Stanford, CA
Reviewer (2 papers)   Nov. 2018

PLOS ONE   Stanford, CA
Reviewer (3 papers)   2017 – 2018

Journal of Web Semantics   Stanford, CA
Reviewer (5 papers)   2017 – 2018

International Semantic Web Conference (ISWC 2017)   Stanford, CA
Reviewer (2 papers)   Oct. 2017

Journal of Biomedical Informatics   Stanford, CA
Reviewer (3 papers)   2014 – 2017

WebGL Game Development Book, Packt Publishing   Galway, Ireland
Technical Reviewer   2013 – 2014

Indian Institute of Technology, Kharagpur   Kharagpur, India
Teaching Assistant: "Cell and Molecular Biology Laboratory" and "Biochemistry Laboratory"   2011 – 2012

SKILLS

- **Programming/Scripting:** Python, R, PHP, JavaScript, representation and querying languages (OWL, RDF, SPARQL, JSON, SQL, etc.), HTML5, WebGL, Unix (Bash, Awk); familiarity with: Java, C and MATLAB
- **Methods:** Semantic Web, Bioinformatics, Machine Learning, Deep Learning, Biostatistics, Network analysis
- **Miscellaneous:** Photoshop, Video Editing, Illustrator, Web Designing
- **Languages:** English, Hindi, Gujarati