

# SAMIA KABIR

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## Education

### Purdue University

*Ph.D. in Computer Science; Advisor: Dr. Tianyi Zhang*

West Lafayette, IN, USA

*Jan. 2021 - Present*

### Texas A&M University

*Master of Science in Computer Science (M.Sc.); Advisor: Dr. John Keyser*

College Station, TX, USA

*Aug. 2017 - May 2020*

### Bangladesh University of Engineering and Technology

*Bachelor of Science in Computer Science and Engineering*

Dhaka, Bangladesh

*May 2010 - Sep. 2015*

## Publications

- **Kabir, S.**, Udo-Imeh, D. N., Kou, B., and Zhang, T. 2024. Is Stack Overflow Obsolete? An Empirical Study of the Characteristics of ChatGPT Answers to Stack Overflow Questions. In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24).
- **Kabir, S.**, Li, L., and Zhang, T. 2024. Stile: Exploring and Debugging Social Biases in Pre-trained Text Representations. In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24).
- S. Esmaili, **S. Kabir**, A. M. Colas, R. P. Linder, and E. D. Ragan. 2023. Evaluating Graphical Perception of Visual Motion for Quantitative Data Encoding. In IEEE Transactions on Visualization and Computer Graphics (TVCG 2022).
- Nourani, M., **Kabir, S.**, Mohseni, S. and Ragan, E.D., 2019, October. The effects of meaningful and meaningless explanations on trust and perceived system accuracy in intelligent systems. In Proceedings of the AAAI Conference on Human Computation and Crowdsourcing (Vol. 7, pp. 97-105).
- Roy, C., Shanbhag, M., Rahman, T., Gogate, V., Ruozzi, N., Nourani, M., Ragan, E., and **Kabir, S.** Explainable Activity Recognition in Videos. Workshop on Explainable Smart Systems (ExSS), ACM Intelligent User Interfaces (IUI) Workshops 2019.
- Mahin, M. T., Hashem, T., & **Kabir, S.** (2017). A crowd enabled approach for processing nearest neighbor and range queries in incomplete databases with accuracy guarantee. Pervasive and Mobile Computing, 39, 249-266.

## Teaching Experience

### Purdue University

*Graduate Teaching Assistant*

West Lafayette, IN

*Jan. 2021 - Present*

- Designed programming projects and conducted programming labs for CS undergraduate course- Introduction to Relational Database Systems.
- Conducted class lecture for CS undergraduate course- Digital Literacy.
- Assisted course instructors in designing and grading homeworks and programming assignments.

### Texas A&M University

*Graduate Teaching Assistant*

College Station, TX

*Sep. 2018 - Dec. 2019*

- Assisted course instructors in conducting programming labs, grading homeworks and programming assignments for 3 Computer Science undergraduate courses- Data Structures and Algorithms, Introduction to Program Design and Concepts, and Computers and New Media.

### United International University

*Lecturer*

Dhaka, Bangladesh

*Sep. 2015 - Aug. 2017*

- Prepared lectures, tutored, graded and conducted programming labs for undergraduate students in C programming, Algorithms, and Computer Architecture courses.

## Professional Experience

### Human-Centered Software Systems Lab, Purdue University

*Ph.D. Student*

West Lafayette, IN

*September. 2021 - Present*

- Designed and implemented machine learning(ML) algorithms using Python, NLTK, and Gensim to identify intersectional bias in large news corpora.
- Designed and implemented a dashboard application(an interactive visual analytic tool) using Python Flask, D3.js, and React.js to identify and debug bias in large text corpora in real time.
- Conducted qualitative analysis, linguistic analysis (LIWC), and sentiment analysis to empirically study the correctness and quality of machine-generated responses to programming questions.
- Designed and conducted controlled user study; Analyzed statistical data in R.

### **ExpiWell, Inc**

*Visiting Graduate Research Intern*

West Lafayette, IN  
May. 2021 - August. 2021

- Worked closely with the software testing team and contributed both in the automated cypress testing and manual testing of their web and mobile applications.
- Participated in weekly sprint meetings and contributed to the documentation of weekly and quarterly activities.
- Conducted ethnographic data collection based on day-to-day activities as a software engineer.

### **School of Public Health, Texas A&M University**

*Software Developer*

College Station, TX  
Oct. 2020 - Nov. 2020

- Designed a simulation tool to visualize epidemiology data to help public health professionals.

### **SynchroGrid LLC**

*Software Development Engineer Intern*

College Station, TX  
Jan. 2020 - May 2020

- Reprogrammed and generated new modules in D3.js for the existing data visualization system to obtain scalable and state-of-the-art visualization.
- Contributed to the new release of SARA-3(Setting Automation Relay Assistant) by designing and developing new visualization techniques in React and Typescript to facilitate Electrical Engineers.

### **Aggie Graphics Group, Texas A&M University**

*Graduate Student Researcher*

College Station, TX  
Sep. 2018 - May 2020

- Designed and programmed a VR research application with 4 different navigation techniques using Unity and C# to visualize large volume of 3D data; Analyzed and experimented with 4 different spatial orientation and navigation techniques to compare their performance in VR. (**M.Sc. Thesis**)
- Programmed simulation applications for physics based rendering i.e. Particle, Cloth, Flock simulations using OpenGL,C++.

### **Indie Lab, Texas A&M University**

*Graduate Research Assistant*

College Station, TX  
Sep. 2017 - Aug. 2018

- Collaborated with ML research by developing user interface for explainable AI; Designed and developed information visualization tool using D3.js to quantify user trust in AI; Analyzed statistical data in R.
- Designed, programmed and experimented with a tool for graphical encoding of motion for quantitative data visualization using JavaScript, D3.js and R.

### **Samsung R&D**

*Software Engineer Intern*

Dhaka, Bangladesh  
Aug. 2014 - Nov. 2014

- Researched and documented features of an operating system Tizen to assist the software development team.

## **Academic Projects**

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- **Analyzing ChatGPT answers to programming questions:** An in-depth manual analysis, a large-scale linguistic analysis, and a user study to empirically study the characteristics of ChatGPT's answers to programming questions.
- **Interactive Bias Debug:** An interactive visual analytic tool using Python, Flask, D3.js, and React.js to identify and debug intersectional bias in news corpora and language models.
- **Visual Aids for Navigation in VR:** A virtual reality tool developed with Unity to capture and compare the effects of visual aids with axis information on navigation and user Experience in virtual reality.
- **Taxi Trip Query Toolkit:** An interactive Visual-Query tool using MATLAB, D3.js, and JavaScript for spatial and temporal queries for NYC Taxi trip data.
- **Quad-Tree Visualization:** An interactive visualization of the popular data structure Quad-Tree using D3.js and JavaScript that demonstrates the features and functionalities of Quad-Tree.
- **Story Time:** A storytelling tool using Node.js and D3.js to interactively generate stories with a chatbot.

## **Award**

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- Purdue Graduate Women in Science Program (WISP) Spring Travel Grant, Purdue University, 2024.
- Graduate School Summer Research Grant, The Graduate School, Purdue University, 2024.
- Graduate Teaching Award, Department of Computer Science, Purdue University, 2023.
- Travel Scholarship (Grace Hopper Celebration of Women in Computing Conference), Department of Computer Science and Engineering, Texas A&M University, 2018.
- Google Women Techmakers Scholar, APAC, 2014.

## Selected Media Coverage

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- **Business Insider**, “*Meet CriticGPT, OpenAI’s new fix for ChatGPT’s biggest coding blunders*”, 2024.
- **Yahoo News**, “*ChatGPT really isn’t great at answering programming questions yet*”, 2024.
- **Futurism**, “*Study finds that 52 percent of ChatGPT answers to programming questions are wrong. AH YES. AND YET...*”, 2024.
- **The Register**, “*ChatGPT’s odds of getting code questions correct are worse than a coin flip*”, 2023.
- **ZDNET**, “*ChatGPT answers more than half of software engineering questions incorrectly*”, 2023.
- **Medium**, “*ChatGPT vs. Stack Overflow: Which Is Better at Answering Software Engineering Questions?*”, 2023.
- **CNBC**, “*3 ways to use AI right now to get ahead—if you do, you’re ‘really going to succeed,’ says expert*”, 2023.

## Skills

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- **Programming Languages**: C++, JavaScript, TypeScript, Python, Julia, HTML, CSS, MATLAB
- **Web Development**: React.js, Node.js, D3.js, Flask, Yarn, Material UI
- **Machine Learning and Statistical Analysis**: PyTorch, NLTK, Gensim, R
- **Graphics and Rendering**: Unity, OpenGL
- **Database**: SQL, MongoDB
- **Software Testing**: Cypress
- **Agile Software Development**: Git, Jira, Bitbucket