

Kamrul Islam Shahin

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Personal Statement

A dedicated, capable, and passionate researcher, including seven years of teaching activities/experience in computer science and engineering. Research interest in system reliability applying machine learning approaches. Regularly contributed papers and posters at scientific events.

Academic Experience

September 2022 – Continue	Assistant Professor, SDU Software Engineering, The Maersk Mc-Kinney Moller Institute, Denmark <ul style="list-style-type: none"><i>Data analytics, optimization, and simulation</i>
March 2021 – August 2022	Postdoc, SDU Software Engineering, The Maersk Mc-Kinney Moller Institute, Denmark <ul style="list-style-type: none"><i>Machine Learning Models for Software Architecture</i> <i>Teaching and supervising</i>
October 2020 – November 2020	Researcher, CRAN, CNRS, University of Lorraine, Nancy, France <ul style="list-style-type: none"><i>Prognostics and health management of complex systems</i>
October 2017 – September 2020	Doctoral researcher, University of Lorraine, Nancy, France <ul style="list-style-type: none"><i>Automatic control, Signal and image processing, Diagnostic, Prognostic, RUL management</i><i>Teaching and supervising</i>
September 2016 – June 2017	Academic researcher (Erasmus exchange program), IUT, University Lumiere Lyon 2, Lyon, France <ul style="list-style-type: none"><i>Classification of the structure of ontology</i>
September 2013 – November 2014	Teaching assistant, United International University, Dhaka, Bangladesh <ul style="list-style-type: none"><i>Theory and practical class, supervision, and assessment</i>

Research projects

Project: Enabling Smart Livestock Farming Technologies for Environmental Sustainability using Blockchain, Software Engineering, SDU, Denmark

Duration: September 2022 – August 2023

About: The project applies a holistic approach for decreasing the GHG emissions derived from intensive livestock farming by optimizing the livestock production. A multi-objective optimization algorithm is developed for milk production and feed optimization, including an IoT data mining function.

Responsibility: - Sensor data analyzing and develop machine learning based predictor
- Implementing digital application for smart farming

Publications: 1 journal, 1 conference

Project: Data-Driven Energy Experts, (year and duration, position), Software Engineering, SDU, Denmark

Duration: December 2021 – September 2022

About: The project develops a new energy technology to lower the barrier for experts to use the Internet of Things sensor data to take actions to improve energy efficiency in the building sector.

Responsibility: - Sensor data analyzing and designing model architecture
- Instigating a machine learning algorithm for normalizing the metadata

Project: Dynamic Office Environments on the Users Terms, Software Engineering, SDU, Denmark

Duration: March 2021 – November 2021

About: The project investigates how office environments can be efficiently utilized, thereby reducing energy consumption while simultaneously increasing user satisfaction and improving the experienced indoor climate.

Responsibility: - Analyzing project requirements and designing a prototypical schema
- Sensor data studying and developing machine learning algorithms for smart prediction

Publication: 1 conference paper

Summary of Skills

- Undertook undergraduate and postgraduate theory and lab courses.
- Managing class 90+ students with class materials and regular activities
- Supervising graduate and postgraduate student's semester and graduation projects

Industrial Experience

April 2015 – July 2016

Programmer, BigWeb Technologies Ltd., Dhaka Bangladesh

- *System schema designing, database designing, Programming*
- *Project leading, Web applications*

Notable Projects

Project: Social Midea Dashboard

Role: Software designing, database managing, programming

Responsibility: - As a developer, gathered user specifications for workability, completeness, and business flow.

- Created visual representation of the product before the implementation

- Participated in System Designing, architecture, and specifications.

Environment: PHP, SQL, html, CSS, JavaScript

Project: Automated School Management System

Role: Database managing, programming

Responsibility: - System updates, training, and product delivery

- Client-end updating, training and product delivery

Environment: OOP, PHP, MySQL, html, CSS, JavaScript

Feb. 2015 – March 2015

Programmer, System Resources Ltd., Dhaka Bangladesh

- *System schema designing, database designing, Programming*
- *Web applications, Desktop application*

Project: Automated Billing Management

Role: Programming, SQL querying

Responsibility: - Structured database and queries

- Client-end updating, training and product delivery

Environment: OOP, MS-SQL Server

Training & Workshop

Mar. 26-29, 2018

Data-driven model identification of dynamic systems at Polytech Nancy, France

Jan. 8-15, 2018

Scientific artwork at CRAN, University of Lorraine CNRS, France

July 1-5, 2019

HMM and Bayesian inference applications at Polytechnic University of Madrid, Spain

Service in Scientific Community

2021 – continue

Reviewer of Journal of Risk and Reliability

2019 – continue

Reviewer of European Safety and Reliability Association

2020 – continue

Co-chair: IEEE Robotics and Automation Society

2022

Invited talk- at United International University, Dhaka, Bangladesh

2020

Motivational Speech- on Machine learning, Polytechnic, Kushtia, Bangladesh

2019

Scientific talk- at PhD community, University of Lorraine, France

2018

Invited talk- PHM research, Polytechnic Institute, Kushtia, Bangladesh

Honors and Awards

- 2017 | **Doctoral Grant**, awarded by French educational government for 36 months of Ph.D. research, University of Lorraine, France
- 2016 | **Erasmus Mundus Scholarship**, awarded by European Union for 10 months of exchange program, University of Lumiere Lyon 2, Lyon, France
- 2015 | **Merit Scholarship**, awarded for excellent results in master's degree, United International University, Dhaka-Bangladesh
- 2013 | **Merit Scholarship**, awarded for excellent results in bachelor's degree, United International University, Dhaka-Bangladesh

Formal pedagogical education

- 2021 | Introduction to teaching at Faculty of Engineering, *SDU*
- 2022 | TEK teach: Constructive Conflict Management in Project Supervision, *SDU*
- 2022 | Executive Education Workshop: Maximizing Personal Productivity, *MIT Sloan Alumni*

Education

- 2020 | **PhD**, University of Lorraine, Nancy, France
- 2017 | **Master's in computer science** and engineering, United International University, Bangladesh, and University Lumiere Lyon 2, Lyon, France
- 2014 | **Bachelor's in computer science** and engineering, United International University, Bangladesh

Publications

Journals: 4, Conferences: 13

1. Shahin, K.I., Simon, C. and Weber, P., 2024. RUL management by production reference loopback. *Proceedings of the Institution of Mechanical Engineers, Part O: Journal of Risk and Reliability*, pp.OnLine-First.
2. Niloofar, P., Lazarova-Molnar, S., Thumba, D.A. and Shahin, K.I., 2023. A conceptual framework for holistic assessment of decision support systems for sustainable livestock farming. *Ecological Indicators*, 155, p.111029." *Ecological Indicators* 155 (2023): 111029.
3. Shahin, K.I., Simon, C., Weber, P., Johansen, A. and Kjærgaard, M.B., 2023. Prognostic considering missing data: An input output hidden Markov model based solution. *Proceedings of the Institution of Mechanical Engineers, Part O: Journal of Risk and Reliability*, 237(5), pp.980-993.
4. Shahin, K.I., Lazarova-Molnar, S. and Niloofar, P., 2023, June. Multi-objective Decision Support Tool for Sustainable Livestock Farming. In *2023 8th International Conference on Smart and Sustainable Technologies (SpliTech)* (pp. 1-6). IEEE.
5. Shahin, K.I., Das, A. and Kjærgaard, M.B., 2023. Input Output HMM for Indoor Temperature Prediction in Occupancy Management Under User Preferences. In *56th Annual Hawaii International Conference on System Sciences, HICSS 2023* (pp. 6811-6819). IEEE Computer Society.
6. Al Mamun, A., Shahin, K.I., Simon, C. and Weber, P., 2022, July. Diagnostic of an Aircraft by Different Dynamics of Operating Conditions. In *2022 International Conference on Control, Automation and Diagnosis (ICCAD)* (pp. 1-7). IEEE.
7. Shahin, K., 2020. *Modèle graphique probabiliste appliqué au diagnostic de l'état de santé des systèmes, au pronostic et à l'estimation de la durée de vie résiduelle* (Doctoral dissertation, Thesis, University of Lorraine, Nancy).
8. Shahin, K.I., Simon, C. and Weber, P., 2020, November. Online remaining useful life management considering operating conditions to match the given maintenance date. In *30th European Safety and Reliability Conference and 15th Probabilistic Safety Assessment and Management Conference, ESREL 2020 PSAM 15*.
9. Shahin, K.I., Simon, C. and Weber, P., 2020, November. Estimating the remaining useful life of a flow distribution system. In *30th European Safety and Reliability Conference and 15th Probabilistic Safety Assessment and Management Conference, ESREL 2020 PSAM 15*.
10. Shahin, K.I., Simon, C. and Weber, P., 2020, November. Input-output hidden Markov model to manage the remaining useful life of system under missing data. In *30th European Safety and Reliability Conference and 15th Probabilistic Safety Assessment and Management Conference, ESREL 2020 PSAM 15*.

11. Islam, K., Simon, C. and Weber, P., 2020, October. Modèle IOHMM pour le diagnostic et le pronostic de systèmes. In *22e Congrès de Maîtrise des Risques et de Sécurité de Fonctionnement, Institut pour la Maîtrise des Risques, $\lambda\mu 22$* .
12. Shahin, K.I., Simon, C., Weber, P. and Theilliol, D., 2020, September. Input-output hidden markov model for system health diagnostic considering missing data. In *28th Mediterranean Conference on Control and Automation, MED 2020*.
13. Shahin, K.I., Simon, C., Weber, P. and Theilliol, D., 2020, September. Input-output hidden Markov model for system health diagnosis under missing data. In *2020 28th Mediterranean conference on control and automation (MED)* (pp. 556-561). IEEE.
14. Shahin, K.I., 2020. *Dynamic probabilistic graphical model applied to the system health diagnosis, prognosis, and the remains useful life estimation* (Doctoral dissertation, Université de Lorraine).
15. Shahin, K.I., Simon, C. and Weber, P., 2020. Bootstrap confidence interval on IOHMM parameters for system health diagnostic under multiple operating conditions. *IFAC-PapersOnLine*, 53(2), pp.10297-10303.
16. Shahin, K.I., Simon, C. and Weber, P., 2019, September. Estimating IOHMM parameters to compute remaining useful life of system. In *Proceedings of the 29th European Safety and Reliability Conference, Hannover, Germany* (pp. 22-26).
17. Shahin, K.I., Simon, C. and Weber, P., 2019, June. Input-output hidden Markov model for diagnosis of complex system. In *Proc. 13th Conférence Internationale de CIGI QUALITA*.

Necessary links

SDU portal: <https://portal.findresearcher.sdu.dk/en/persons/kamrul-islam-shahin>

Google Scholar: <https://scholar.google.com/citations?user=JzWtCIUAAAAJ&hl=en&authuser=2>

LinkedIn: <https://www.linkedin.com/in/kamrul-i-shahin/>

ResearchGate: <https://www.researchgate.net/profile/Kamrul-Islam-Shahin>

ORCID: <https://orcid.org/0000-0002-7827-9537>

Logos:

